ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2015

WEDNESDAY, APRIL 9, 2014

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met, pursuant to notice, at 2:31 p.m., in room SD–192, Dirksen Senate Office Building, Hon. Dianne Feinstein (chairwoman) presiding.

Present: Senators Feinstein, Murray, Landrieu, Udall, Shaheen, Alexander, Cochran, McConnell, Collins, Murkowski, Graham, and Hoeven.

DEPARTMENT OF ENERGY

OFFICE OF THE SECRETARY

STATEMENT OF ERNEST MONIZ, SECRETARY

OPENING STATEMENT OF SENATOR DIANNE FEINSTEIN

Senator FEINSTEIN. Good afternoon, ladies and gentlemen. We are going to start right on time. We have five votes scheduled for 3:30. So what we would like to do is go as quickly as we can. We expect 10 members. I know the minority leader will be here. I will interrupt the straight early bird which we do, that we don't alternate sides, we just go straight early bird, if the minority leader comes and wants to ask some questions because he would have to go back to the floor. So, we will do that.

Mr. Secretary, I want to welcome you to this hearing; Mr. Poneman, you as well. The hearing is to discuss the Energy and Water Subcommittee budget for fiscal year 2015.

The Department of Energy has requested $27.963 billion for fiscal year 2015. That's an increase of $682 million, or 2.5 percent, from fiscal year 2014. Approximately $451 million, or 66 percent of that amount, is for the National Security Administration's Nuclear Weapons and Naval Reactor Programs. That's a 4-percent increase for NNSA (National Nuclear Security Administration).

This subcommittee will explore in greater detail NNSA's budget request on April 30, but the priorities you lay out, Mr. Secretary, for national security programs in this year's budget request demand an explanation.

The Nuclear Posture Review finds that the highest national security priority is "preventing nuclear proliferation and nuclear terrorism." Two weeks ago, President Obama stated that what kept

him up at night was "the prospect of a nuclear weapon going off in Manhattan." However, the budget request makes Nuclear Weapons and Naval Reactor Programs the highest priority at the expense of non-proliferation and environmental clean-up activities.

This is hard for me to understand, why we would cut programs that keep nuclear materials out of the hands of terrorists, especially when al-Qaeda and other terrorist groups have repeatedly shown interest in acquiring weapons-grade material. What is disappointing is that we had a discussion about priorities before the budget submission and you assured me that the fiscal year 2015 budget would be more balanced without adversely cutting non-proliferation.

Instead, the budget request proposes an increase of $533 million, or 7 percent, for nuclear weapons, the largest single increase in the Department's budget; and an increase of $282 million, or 26 percent, for Naval reactors. It looks like the Department of Defense had a strong hand in your budget this year.

In contrast, non-proliferation, which is getting rid of nuclear material, would see a cut of $400 million, or 20 percent, which would be the largest single decrease in the Department's budget; and a decrease of $209 million, or 4 percent, for environmental clean-up activities related to past nuclear weapons production and nuclear energy research.

As far as I'm concerned, this is not acceptable. What I see are additional cuts to well-managed programs that have made this country safer from nuclear terrorism at the expense of increased funding for poorly managed nuclear weapons programs, and I say that with justification that I believe you know about.

Slashing programs that prevent nuclear terrorism and protect the health and safety of communities from the effects of nuclear weapons production is a major concern, and I hope you're prepared with a good explanation.

I won't touch on the Office of Science. It has increased $45 million, or 1 percent. It looks to be in pretty good shape.

I'd like to just quickly highlight my biggest concern. It's in the science budget, and it's ITER (International Thermonuclear Experimental Reactor).

ITER is an experimental fusion reactor being built in France. After pressure from this subcommittee, the Department has provided a more reliable cost estimate for this project. Unfortunately, the cost keeps increasing. Under the best-case scenario, the United States' cost to help build ITER will be $4 billion for the Department of Energy (DOE), twice the original cost estimate. Under a more realistic scenario, the cost may exceed $6 billion. That's according to an independent review by your own department, Mr. Secretary.

To make matters worse, an independent assessment of the ITER organization found a long list of problems that could lead to additional cost increases and schedule delay. Some of these include the lack of project management skills and a sense of urgency to complete the project; a lack of realistic milestones; too few staff with large project management and industrial experience to integrate thousands of components for the most complex engineering project in the world.

Mr. Poneman, I hope you can share your views of whether you think the project management problems at ITER can be fixed and whether the United States should continue to fund ITER given the cost increases and higher scientific priorities.

Actually, this may be an opportunity to experience the power of the purse.

Joining us today to explore these national security and energy issues is Dr. Ernie Moniz, the Secretary of Energy. Next to him is Dan Poneman, the Deputy Secretary of Energy. Secretary Moniz is recused from the topic of fusion, so Deputy Secretary Poneman is here to answer any fusion-related questions, and I believe that that is because of your past association with MIT and the fusion facility there. So I thank you both for taking the time to be here today.

Our distinguished ranking member, Senator Alexander.

STATEMENT OF SENATOR LAMAR ALEXANDER

Senator ALEXANDER. Thank you, Madam Chairman.

Mr. Secretary, Mr. Poneman, thank you for being here. I look forward to this.

I want to start by thanking Secretary Moniz and Mr. Poneman for your attention to mercury contamination at Oak Ridge. That is our highest environmental priority, and yesterday was a day of remembrance for families who were victimized by their work at Oak Ridge during the cold war and died or were severely injured by exposure to toxic materials. This is our concern now, and I'm glad we're beginning to get a start on it.

My goals are, one, basic research; two, getting control on the construction progress for major projects to reduce spending on mature technologies and focus spending on research for new technologies, and to modernize the deterrent.

Briefly about research, the one piece of advice I've given to the Secretary, and I don't want to give much to him because he has lots of experience, is to do some missionary work on my side of the aisle on ARPA–E (Advanced Research Projects Agency—Energy), because the Republicans look at some of the Obama administration energy adventures and don't like what they see over the last several years, and some have lumped ARPA–E in with that.

I think it's a very different idea. It came out of a bipartisan proposal called America COMPETES (America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science), which had as many Republican as Democrat Senators on it, 30 on each side. It's a descendant of DARPA (Defense Advanced Research Projects Agency), which is a Defense Department miracle, really, in terms of it leading literally to the Internet, the stealth technology, and I think Republicans would like ARPA–E, and I encourage you, and I will help, to make sure that we know the story about the creation of 24 new companies, new projects, the fact that they're thrown back out in the marketplace very quickly and Government gets out of their way, and we're beginning to see some advances.

So I'm a big believer in the fact, as I think are most of us here, that since World War II, it's hard to think of a major technological advance in our country that's not had some Government-sponsored research involved in it. That's an important story. The Office of

Science is at the center of that, and I strongly support generous budget recommendations for that part of the budget.

We should be about setting priorities, and we shouldn't let the runaway mandatory entitlement spending squeeze out investments in research that improve family incomes, improve lives, and make our country better.

Now, sometimes people say to me, Madam Chairman, what do you find satisfying about serving in the Senate, and I say, well, sometimes I go to bed at night thinking I may have done just a little something to make our country better, and my little something today is something that the chairman and I have been working on, and that is I think I may see the light at the end of the tunnel on this way for us to do a better job of getting control of these massive construction projects which are eating up billions of dollars, and it's very difficult for members of Congress to have the expertise or the ability to deal with those.

I'm looking for the description of the red team that I had on one page here. Here it is. And I would cite to the chairman the red team with the uranium facility, Madam Chairman. A few months ago we decided that we would meet on a regular basis with someone who's in charge. But since then—this is what I understand from the preliminary briefings—they've taken the review process that the Office of Science has had, which has been successful in keeping its projects under control. I think of the Spallatian Neutron Source at Oak Ridge, which was on time, on budget, even though it was $1.5 billion, and they've taken the head of the Oak Ridge Lab, Thom Mason. He has had a 60-day process with a team of 25 people from all over DOE. They've gone to the uranium facility. They spend an entire week there. Then they went away and did a week of homework. Then they went back again for an entire week, and they're going to give us a report this month on what we need to do to keep it within budget and still meet the objective.

I don't want to pre-judge the report. Maybe it won't turn out to be something we want. But I like the process. And what I like is that if there is an existing process in DOE on the Office of Science side, this is not a hearing about the NNSA, but I would like to talk about when my time comes why we wouldn't consider using that same process with the MO_X (mixed oxide fuel) process at Savannah River, initial projected cost of nearly $5 billion, current cost between $13 billion and $25 billion. The uranium process initial cost, $650 million, current cost between $4 billion and $6 billion. ITER, the Chairman mentioned, where are we going with that? Billions more. The Chemistry and Metallurgy Replacement Facility, $3.7 to $5.8 billion.

We need to get control of these runaway costs, and if the red team review is a way to do that, Madam Chairman, I think we need to focus some time on it. So I want to suggest, if I may, to you and to the Secretary that when that report is available, perhaps we have a special hearing for us to hear it and then to consider whether to apply that same sort of discipline one-by-one to these other projects.

Now, finally, I didn't say anything about nuclear weapons, but that's another area that's hard for us to work on, these big weapons programs. They're complicated, they're secret, and we don't

have all of the expertise to deal with it. Maybe a similar type of discipline or review of nuclear weapons programs would assist us in making sure that we meet our mission, but that we literally don't waste billions of dollars that could have otherwise been avoided.

So that's what I'm looking forward to talking about today, and I thank the chairman for indulging me in a little extra time to comment on it.

Senator FEINSTEIN. Just to say this, and then we'll proceed to the Secretary. As you know, Senator, I agree with you 100 percent. We have held these meetings. I think they have been helpful, but the problem continues on, and it seems to grow. With the nuclear weapons, we're cutting non-proliferation, which, heaven knows, is necessary, to pick up all this dirty stuff, and a lot of progress has been made in doing it. So we're cutting non-proliferation to add more for nuclear weapons. Plus you have uranium processing, you have all these problems with virtually every area of fissile material production running way over budget.

So the whole arena, I think, is up for very serious scrutiny, Mr. Secretary.

In any event, we're delighted that you're here. We have spoken before. So you, as I understand it, will make some short comments, Mr. Poneman, and we will then go to questions. The minority leader is here. He has to return to the floor, so we will take his questions out of order.

Please proceed, Mr. Secretary.

SUMMARY STATEMENT OF ERNEST MONIZ

Secretary MONIZ. Thank you, Chairman Feinstein and Ranking Member Alexander and members of the committee. I will be very brief in light of your constraints.

First, as you've already said, the budget request in a very constrained environment overall is for a 2.6 percent increase, and I would just argue that reflects, I think, some of the very important missions we have in terms of a clean energy future and on nuclear security in particular, in addition to maintaining the scientific enterprise in this country, sustaining it, growing it, and of course meeting our obligations to clean up the mess of the cold war.

I would just say that our budget was organized around our reorganized Department with our three main focus areas: energy and science, nuclear security, management performance. As you have both commented, we have tried very much to elevate the focus on management performance because we feel we cannot execute our nuclear security and energy and science missions unless we, frankly, raise our game in that area.

On science and energy, the budget request is $9.8 billion, a 5-percent increase.

Again, in the spirit of trying to hurry up, I'll skip many things. But I'd like to just comment on Senator Alexander's very kind comments on ARPA–E, which I agree has been a big success. I would add one thing to some of the things you said, 24 start-ups, et cetera, and that is that uniquely in this program is also the entrepreneurial flavor that every project, for example, has, if you like,

an advisor on tech-to-market. So it's a very novel program, and I appreciate the support.

Another thing I'll just mention, in our energy and science proposals principally, although sometimes involving NNSA, I'd like to highlight a set of cross-cutting initiatives where we are trying to bring together the strengths of different offices in a complementary way in areas like grid modernization, exa-scale computing, sub-surface science and engineering, areas of this type. Our laboratory directors are very excited about this and are prepared to work together.

Nuclear security, budget request $11.9 billion. Chairman Feinstein has gone through the way that is broken out. Let me first say that on the weapons side, frankly, the plan put forward last year was not supportable in any credible budget environment that we could see. So we went through a very engaging process with the Department of Defense, with the National Security Council, with the Weapons Council, and we committed that we had to sustain the fundamental stockpile posture put forward in the Nuclear Posture Review, but we had to just, frankly, stretch it out in ways that had a budget profile that cut over $1 billion a year over the Life Extension Programs in the 2017 to 2020 timeframe.

So we made that commitment, and we must have a safe and reliable stockpile. Regrettably, and I say that honestly, quite regrettably within our relatively small part of the 2015 budget, we must support weapons, non-proliferation, Naval reactors, environmental clean-up, and intelligence programs, and we do believe we still have a very strong non-proliferation program, which we can discuss. As you said, 2 weeks ago or 3 weeks ago in The Hague, there was the Nuclear Security Summit. We had some great successes to announce, including the repatriation of many hundreds of kilograms of HEU (highly enriched uranium) and plutonium.

I do want to point out that over half of the reduction in the non-proliferation program was in the specific project of MO_X, where we called for a pause to evaluate that. I do want to just clear up right now, there has been some confusion on numbers. Apples and oranges are being compared when you may have heard a $17 billion number recently. That was strictly for the fuel fabrication facility. As Secretary of Energy, I have to look at the entire program to make MO_X, and that's where our estimate is $30 billion, and we need a discussion to see what our priorities are going to be in terms of how we dispose of those 34 tons of weapons plutonium and have the Russians do the same.

Management performance, $6.5 billion. Again, I'll just note that that is a new focus area with a new organization stood up to enforce that.

I'll end by saying in the theme that you have both raised about project management, I'm sure we'll come back to it, but we are providing, trying to provide a completely new discipline in how these are advanced. I view, in fact, one of the major projects not mentioned is the waste treatment project at Hanford, probably the largest, most complex, and there we're still negotiating with the State. But we have put forward a new phased framework that the State has agreed with. Now we have to work out dates and things.

But I think, again, we're trying to bring realism and discipline to this process, give you a baseline when we've done 90 percent design, not 10 percent design.

With those comments, thank you for your time, and I look forward to the discussion.

[The statement follows:]

PREPARED STATEMENT OF ERNEST MONIZ

Chairwoman Mikulski and Chairman Feinstein, Ranking Members Shelby and Alexander, and Members of the Committee, thank you for the opportunity to appear before you today to discuss the Department of Energy's (DOE) Budget Request for fiscal year 2015. This is my first time appearing before this subcommittee since I joined the Department of Energy last May, and I appreciate the opportunity to discuss how the budget request advances our clean energy, science, nuclear security, and nuclear waste cleanup goals to carry out the President's priorities.

The President has made clear that the Department of Energy has significant responsibilities for advancing the Nation's prosperity and security through its mission. In particular, I would like to highlight three critical mission areas of the Department.

As the President said in the State of the Union address, "the all-of-the-above energy strategy I announced a few years ago is working, and today, America is closer to energy independence than we've been in decades." This strategy is driving economic growth and creating jobs, while lowering our carbon emissions. We are producing more natural gas in the United States than ever before. And for the first time in 20 years, we are producing more oil at home than we import from the rest of the world. We have also made remarkable progress in clean and renewable energy. In the last 5 years, we have more than doubled the amount of electricity we generate from wind and solar. At the same time, we are making the investments that will enable coal and nuclear power to be competitive in a clean energy economy, and aggressively advancing efficiency for its economic and environmental benefits.

In June 2013, the President launched the Climate Action Plan. Under this plan, the Department is working to reduce the serious threat of climate change and, with a heightened focus on resilience, preparing American communities for the impacts of a changing climate that are already being felt.

Just over a week ago at the Nuclear Security Summit in The Hague, the President reiterated his commitment to nuclear nonproliferation and security, calling on the global community to decrease the number of nuclear weapons, control and eliminate nuclear weapon-usable materials, and build a sustainable and secure nuclear energy industry. All of these areas are central to the Department of Energy's mission: maintaining a strong and credible strategic deterrent, working to secure and eliminate vulnerable nuclear materials around the world, and advancing safe nuclear power technology for the decades ahead.

Both of these mission areas—clean energy and nuclear security—depend on sustaining America's research and development (R&D) leadership. The Department of Energy, to a large extent through our 17 national laboratories, plays a key role in our Nation's respective advantage in the physical sciences.

Finally, the President's Management Agenda includes an emphasis on Federal agencies' effective and efficient execution of their missions for the American people.

CARRYING OUT DOE'S TOP PRIORITIES THROUGH AN EFFECTIVE ORGANIZATION

The Department of Energy's budget request for fiscal year 2015 aligns the agency's funding and organization with these three presidential priorities.

First, while the Department's science and energy programs have previously been managed and overseen separately by two under secretariats, we have merged those roles into a single Under Secretary for Science and Energy to more effectively carry forth our science and energy priorities. I'll discuss some of the cross-cutting initiatives facilitated by this new organizational structure, as well as how we are reexamining and strengthening the way we work with our National Laboratories to better carry out our science and energy missions.

Next, an Under Secretary for Nuclear Security, who also serves as Administrator for the National Nuclear Security Administration, oversees our nuclear security missions and ensures effective and efficient collaboration across under secretariats on crosscutting activities and missions. This Under Secretary is also engaging in dis-

cussions with the National Laboratories and with Congress to ensure that all of our sites are working to serve the public interest to the greatest extent possible. This position is, of course, established with the principle high level charge of preserving U.S. nuclear security, this why we are moving the Office of Environmental Management to the new Under Secretary for Management and Performance.

Finally, we created the Under Secretary for Management and Performance to implement a strong focus on management to effectively carry out our missions on behalf of the American people. It is not a secret that DOE has room for improvement in this area, and establishing this new position will bring focus and leadership to these challenges.

This Under Secretary focuses on management across the Department, and oversees our environmental cleanup programs. It is inherently complex and challenging to design and implement one-of-a-kind projects to nuclear safety standards. We have had many successes in implementing major projects at the Department of Energy, and obviously we have had and are continuing to have major challenges. We have reduced our Cold War legacy "footprint" by 74 percent. But of course, the most complex and difficult projects remain. A focus on management and performance is critical to further building upon our successes and overcoming our challenges.

The Department of Energy's top-line discretionary budget request for fiscal year 2015 is $27.9 billion, a 2.6 percent increase above fiscal year 2014. The Department of Energy's 2.6 percent increase recognizes our high-priority missions for clean energy and addressing climate change, nuclear security, and innovation. The Department of Energy's budget request includes $9.8 billion for energy, science, and related programs, $11.9 billion for nuclear security, and $6.5 billion for management and performance and related programs. I will discuss the budget request for each of these three programmatic areas in more detail.

Recognizing the importance of the 2-year budget agreement Congress reached in December, the Budget adheres to the 2013 Bipartisan Budget Act's discretionary funding levels for 2015. However, these levels are not sufficient to expand opportunity to all Americans or to drive the growth our economy needs, and the need for pro-growth investments in infrastructure, education, and innovation has only increased due to the Great Recession and its aftermath. For that reason, the Budget also includes a separate, fully paid for $56 billion Opportunity, Growth, and Security Initiative (OGSI), which shows how additional discretionary investments in 2015 can spur economic progress, promote opportunity, and strengthen national security. Consequently, in addition to the base budget submission of $27.9 billion for the Department of Energy, OGSI provides $1.6 billion for additional investments at the Department of Energy. Those investments consist of over a billion dollars in the energy and climate arena—including $355 million for climate resilience and $684 million for clean energy and energy efficiency activities—and $600 million for additional investments in nuclear security.

In addition to our discretionary budget and OGSI, the Budget also proposes an Energy Security Trust. This $2 billion investment over 10 years will support R&D into a range of cost-effective technologies—like advanced vehicles that run on electricity, homegrown biofuels, renewable hydrogen, and domestically produced natural gas—and will be drawn from existing royalty revenues generated from Federal oil and gas development.

SCIENCE AND ENERGY

The budget request includes $9.8 billion for science and energy programs to further our all-of-the-above energy strategy, support the President's Climate Action Plan, continue the Quadrennial Energy Review, and maintain global scientific leadership. The request includes $4.7 billion for a portfolio of energy activities consisting of our applied energy programs, the Advanced Research Projects Agency—Energy (ARPA–E), the Loan Programs, International Affairs, the Energy

Information Administration, our new Energy Policy and Systems Analysis program, our proposed consolidation of the Office of Indian Energy Policy and Programs, and the Power Marketing Administrations. These offices reflect the wide diversity of programs, roles, and responsibilities that we have in the Nation's energy sector.

The budget request for science and energy also includes $5.1 billion for the Office of Science, which provides the national research community with unique research opportunities at major facilities for nuclear and particle physics, energy science, materials research and discovery, large-scale computation, and other disciplines.

Together, these programs support the President's Climate Action Plan, further an all-of-the-above energy strategy, and promote and sustain U.S. leadership in science

and technology innovation to ensure that clean energy technologies are invented and manufactured here in America.

Energy Efficiency and Renewable Energy

The Department's Office of Energy Efficiency and Renewable Energy (EERE) is the U.S. Government's primary clean energy technology organization, working with many of America's best innovators and businesses to support high-impact applied research, development, demonstration, and deployment (RDD&D) activities in the areas of sustainable transportation, renewable power, and energy efficiency.

EERE has experienced tremendous success in contributing to efforts to reduce U.S. dependence on foreign oil, save American families and businesses money, and grow the domestic clean energy industry. For example, EERE has helped manufacturers increase their energy productivity, including providing technical support to 590 combined heat and power projects between fiscal year 2009 and fiscal year 2013. Since 1979, EERE-supported RD&D has advanced 220 new manufacturing technologies that can and will continue to significantly increase energy efficiency. In addition, through the EERE-supported SuperTruck Initiative, EERE partners have developed a full-scale, prototype class 8 heavy-duty truck that is 61 percent more efficient than current technology. And these are only a couple of examples of the work underway.

The budget request for EERE is $2.3 billion, a 22 percent increase over the fiscal year 2014 enacted level to fully support investments in these areas of sustainable transportation, renewables, and efficiency and manufacturing.

From day one as Secretary, I have placed a strong emphasis on energy efficiency. This budget follows through on that focus by proposing a 39 percent increase in energy efficiency programs in building efficiency, weatherization of homes, advanced manufacturing, and Federal energy and State and local partnership activities. This increase includes funding for activities, such as developing and issuing new appliance standards and working with States on building code development, to strongly promote energy efficiency in support of our goals for the climate, the economy, and American competitiveness.

In his State of the Union address, the President articulated his vision for supporting American manufacturing, including a focus on increasing the number of our manufacturing institutes to accelerate U.S. development of world-leading manufacturing technologies and capabilities. These Institutes connect businesses to research universities that can help America lead the world in advanced technologies. In addition to DOE's contribution to the first institute on additive manufacturing led by the Department of Defense, the Department of Energy awarded an additional institute this year that specializes in wide bandgap semiconductors and announced a competitive solicitation for an additional institute on advanced composites. The fiscal year 2015 budget request will support at least one additional manufacturing institute funded at up to $70 million over 5 years, with at least one-to-one matching funds from the recipient.

Vehicle technologies are a major focus of DOE's EERE budget request and of the Energy Security Trust proposal. The fiscal year 2015 budget request supports research, development, demonstration, and deployment of efficient and alternative fuel vehicles, including the EV Everywhere goal that aims to make electric vehicles as affordable and convenient as the gasoline powered vehicles we drive today by 2022. This would be accomplished through cost reduction and improved performance in batteries, electric drive systems, lightweight materials, and integration with the electric power grid. The request also includes funding to continue a focused research and development effort to reduce the cost and increase the durability of fuel cell systems. The request further includes $60 million, administered through authority provided by the Defense Production Act, in collaboration with the Departments of Agriculture and Defense, to continue to enable the objective of producing advanced biofuels that meet military specifications at a price competitive with petroleum—an initiative first supported with DOE funding in fiscal year 2014.

The Department's budget request also continues to advance renewable energy through a number of ongoing initiatives. The request supports the SunShot Initiative's mission to make solar energy technologies, including both solar photovoltaic (PV) and CSP technologies, cost-competitive with traditional sources of electricity, without subsidies, by 2020. It supports research, development and demonstration for wind energy, including funds for three advanced offshore wind demonstration projects to be operational by 2017, and it includes funding to advance technologies in both conventional hydropower and marine and hydrokinetic devices. The request continues to support the Frontier Observatory for Research in Geothermal Energy (FORGE), a new geothermal energy R&D project started in fiscal year 2014, and

a critical step for learning how to harness our vast but untapped domestic geothermal resources through enhanced geothermal systems.

Fossil Energy

As part of our all-of-the-above energy strategy, DOE's Fossil Energy Research and Development program advances technologies related to the reliable, efficient, affordable, and environmentally sound use of fossil fuels which are essential to our Nation's security and economic prosperity. Since President Obama took office, the Department of Energy has invested more than $6 billion in carbon-capture and storage (CCS) research, development and demonstration. The Office of Fossil Energy is leading this charge, supporting critical research and deployment efforts to ensure that all sources of energy, including fossil fuels, are competitive in a carbon constrained economy.

The budget request continues the Department's strong focus on carbon-capture and storage (CCS) through its $476 million request for Fossil Energy (FE) Research and Development. In addition to our current portfolio of demonstration projects, The request includes $25 million for a new demonstration program, Natural Gas Carbon Capture and Storage (NG–CCS), to support a project to capture and store carbon emissions from natural gas power systems. Looking into the future, CCS technologies will be required for natural gas, as with coal, to be a major player in a low-carbon world.

In addition, the Loan Guarantee Program is currently receiving applications for up to $8 billion in loan guarantees focused on advanced fossil energy projects that reduce CO2 emissions. Together with these ongoing projects and the fossil loans, the fiscal year 2015 budget request constitutes a major fossil energy program.

The request includes $15.3 million to implement priority collaborative research and development with the Environmental Protection Agency and Department of the Interior to ensure that shale gas development is conducted in a manner that is environmentally sound and protective of human health and safety; $4.7 million to fund a new midstream natural gas infrastructure program focused on advanced cost-effective technologies to detect and mitigate methane emissions from natural gas transmission, distribution, and storage facilities and to communicate results on methane emissions mitigation to stakeholders; and, $15 million to conduct lab- and field-based research focused on increasing public understanding of methane dynamics in gas-hydrates bearing areas.

The budget request provides for the full operational readiness of the Strategic Petroleum Reserve including restoration of its designed drawdown capability.

Nuclear Energy

The Office of Nuclear Energy works to advance nuclear power as a resource capable of contributing to meeting the Nation's energy supply, environmental, and national security needs. The budget request for the Office of Nuclear Energy, $863.4 million, is roughly flat compared to the fiscal year 2014 appropriated level. The Office will continue ongoing work with particular focus in two main areas: the development of next-generation nuclear reactors and the management of nuclear waste.

For next-generation reactors, the budget request continues to fund research and development on advanced reactor technologies, as well as technical support for two awards to help accelerate the commercialization of small modular reactors. It also provides funding for the continuation of the Department's first Energy Innovation Hub into a final 5 year term, assuming the determination is made that the Hub meets all requirements and criteria to be eligible for renewal. The Department is using a formal process make the renewal determination, which will be completed within fiscal year 2014. This hub is focused on nuclear energy modeling and simulation and currently centered at Oak Ridge National Laboratory.

In addition to the focus on new reactor technologies, the budget request funds for activities to advance the Administration's Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste. The budget request continues to lay the groundwork for implementation within existing authorities by providing $79 million for Used Fuel Disposition activities, including $30 million for generic process development and other activities related to storage, transportation, disposal, and consent-based siting, and $49 million for related generic research and development. The budget also includes a funding reform proposal needed to support implementation of the nuclear waste management program over the long term.

Electricity Delivery and Energy Reliability

The Electricity Delivery and Energy Reliability (OE) program drives electric grid modernization and resiliency in the energy infrastructure through research and development, partnerships, facilitation, modeling and analytics, and emergency preparedness and response. OE also serves as the Federal Government's primary liai-

son to the energy sector in responding to energy security emergencies, both physical and cyber.

OE's development of advanced sensors to measure the flow of electricity in real time is enabling grid operators to monitor system health and mitigate disturbances.

Roughly 1,700 sensors have now been installed nation-wide, providing wide visibility of the grid that can prevent the kind of cascading events that caused the 2003 blackout. OE's cybersecurity research has produced commercially available tools designed specifically for the energy sector. Just one example is a tool to assist the electricity sector assess and strengthen their cybersecurity maturity posture. This program has been accessed by over 100 utilities and has now been adapted and released for use by the oil and natural gas sector. OE also responded to three energy emergency events in fiscal year 2013, including Superstorm Sandy, facilitating restoration efforts through trained analysts and responders coupled with the deployment of the program's near-real time visualization capability, enabling quicker power restoration and fuel delivery systems.

The budget request, $180 million, includes a substantial increase for OE, over 20 percent, to emphasize grid modernization and resiliency in several areas. The budget increase supports the Department's growing focus on increasing the resiliency of the energy infrastructure through emergency preparedness and response. From the severe cold weather over the past winter to extreme storms, including Superstorm Sandy, we have seen how important these activities are. The Department is also focused on the growing danger of cyber-attacks and the physical security of the grid. The budget increases funding to strengthen the energy infrastructure, critical for national, economic and energy security, against both natural and man-made hazards, through research and development and through the establishment of an Energy Resilience and Operations Center.

The budget increase also helps move the Nation closer not only to a more resilient grid, but one that is also more reliable, efficient and flexible through research and development into microgrids and grid-scale energy storage. It also invests in transformation of the distribution system toward higher performance through new, more advanced control systems.

Advanced Research Projects Agency—Energy

The Advanced Research Projects Agency—Energy (ARPA–E) program takes a unique entrepreneurial approach, supporting high-risk high-reward energy technology research projects that could create the foundation for entirely new industries, but are too early in their development for private sector investment. With ARPA–E, we are swinging from the heels and trying to hit home runs, not just base hits.

ARPA–E has invested over $900 million across 363 projects through 18 focused programs and two open funding solicitations. In the past year alone, ARPA–E has launched focused programs to improve techniques to manufacture light-weight metals, develop robust battery chemistries and architectures for electric vehicles, biologically convert natural gas to liquids, create innovative semiconductor materials for improved power conversion, and use solar concentration techniques for hybrid solar converters. To date, 22 ARPA–E projects have attracted more than $625 million in private-sector follow-on funding after ARPA–E's investment of approximately $95 million.

ARPA–E funded companies and research teams have successfully engineered microbes that use carbon dioxide and hydrogen to make a fuel precursor for cars, developed a one megawatt silicon carbide transistor the size of a fingernail, produced a new hardware device that regulates the flow of power on the electrical grid and software that allocates electricity in much the same way Internet routers allocate bandwidth throughout the Internet.

The budget request provides $325 million for ARPA–E, a 16 percent increase, which will be split between an open solicitation to capture potentially transformational ideas not within the scope of existing programs, as well as 4–5 new programs looking at critical energy challenges.

Loan Programs

The Department's Loan Programs Office supports a large, diverse portfolio of more than $30 billion in loans, loan guarantees, and commitments, supporting more than 30 closed and committed projects. The projects that LPO has supported include one of the world's largest wind farms; several of the world's largest solar generation and thermal energy storage systems; the first new nuclear reactors to begin construction in the United States in more than three decades; and more than a dozen new or retooled auto manufacturing plants across the country. The program as a whole is performing very well to date, with losses below expected levels.

The example of utility scale solar shows how the Loan Program can jumpstart an entire industry. If we think back to 2009, photovoltaic projects larger than 100 MW were non-existent in the United States. And there was no commercial financing market for large solar projects. Using Recovery Act Funds, our Loan Program Office financed the first six utility scale PV projects in the United States. And these projects helped prove to private industry that the technology was viable and cost effective. Since our initial investments, 10 new utility scale projects have been funded by the private sector.

The budget request includes administrative funds for the Title 17 Innovative Technology Loan Guarantee Program and the Advanced Technology Vehicles Manufacturing Loan Program. While the budget does not propose new loan authority or credit subsidies, I would note that the Loan Program celebrated a number of milestones in the last few months, including the opening of the Ivanpah solar plant—the world's largest solar-thermal plant—and the financial closing of two loan guarantees to support the construction of the Vogtle nuclear reactor project. We have also begun accepting applications for an $8 billion advanced fossil energy loan guarantee solicitation, and we look forward to continue to use the Program's existing authority to support the President's all-of-the-above energy strategy.

Energy Information Administration

The Energy Information Administration (EIA) is the statistical and analytical agency in the Department of Energy. EIA collects, analyzes, and disseminates independent and impartial energy information to promote sound policymaking, efficient markets, and public understanding of energy and its interaction with the economy and the environment. In the last year, EIA released a new Drilling Productivity tool, which has already received widespread, praised from industry participants and will also lead to a more accurate baseline for production estimates in many other of EIA's reports. In 2013, EIA also launched the most comprehensive portal of the U.S. Government's national and State energy data currently available.

EIA is important both to the mission of the Department and also to the functioning of energy markets. The budget request proposes $122.5 million, an increase of 5 percent, to fully support EIA's important capabilities through upgrades to its infrastructure and the development of the new products for evolving energy markets.

Energy Policy and Systems Analysis

The Office of Energy Policy and Systems Analysis (EPSA), established last year, serves as my principal policy advisor on energy and related integration of energy systems and acts as a focal point for the Department's analysis and development of energy policy that could facilitate the transition to a clean and secure energy economy. EPSA carries out strategic studies and policy analysis, maintains and coordinates a supporting set of analytical capabilities, and carries out assessments of the strength, resiliency, and anticipated challenges of national energy systems.

By identifying and prioritizing ways in which DOE programs may be strengthened to contribute to the economic well-being, environmental quality, and energy security of the United States, EPSA plays a critical role in the Department's policy formulation, and in efforts like the Quadrennial Energy Review (QER) and DOE's crosscutting grid modernization initiative.

The QER report will provide an integrated view of, and recommendations for, Federal energy policy in the context of economic, environmental, occupational, security, and health and safety priorities, with attention in the first report given to the challenges facing the Nation's energy infrastructures. It will review the adequacy, with respect to energy policy, of existing executive and legislative actions, and recommend additional executive and legislative actions as appropriate; assess and recommend priorities for research, development, and demonstration programs to support key energy-innovation goals; and identify analytical tools and data needed to support further policy development and implementation.

The budget request for EPSA is $38.5 million, an increase of $22.4 million, to support several key initiatives. The increase primarily funds the crosscutting grid modernization efforts, as well as analytics and modeling in support of DOE's responsibility as secretariat for the government-wide Quadrennial Energy Review.

Indian Energy Policy and Programs

The Office of Indian Energy Policy and Programs (IE) directs, fosters, coordinates, and implements energy planning, education, management, and competitive grant programs to assist Tribes with clean energy development and infrastructure, capacity building, energy costs, and electrification of Indian lands and homes. IE performs these functions consistent with the Federal Government's trust responsibility, Tribal self-determination policy, and government-to-government relationship with

Indian Tribes, and accomplishes its mission through technical assistance, education, and capacity building; research and analysis; and financial assistance to Indian Tribes, Alaska Native Tribes and corporations, and Tribal energy resource development organizations.

The budget request, which provides $16 million for Indian Energy Policy and Programs as a separate appropriation, reflects the consolidation of our tribal energy programs into a single office.

Science

DOE's science programs provide the technical underpinnings to accomplish the Department's missions and form part of the backbone of basic research in the physical sciences in the United States. Almost 28,000 researchers use Office of Science user facilities each year, and the successful construction and operation of these facilities is central to the economic competitiveness, national security, and scientific leadership of the Nation.

The budget request provides $5.1 billion for the Office of Science, a 1 percent increase above fiscal year 2014. The request builds upon the Department's strength in the development of large-scale computational capability. The fiscal year 2015 request supports the Office of Science in developing next-generation computational tools—and in applying these tools to many of science's grand challenges, such as climate modeling and computational material science.

In particular, Science will lead, in conjunction with the National Nuclear Security Administration (NNSA), research focused on developing capable exascale computing platforms. Maintaining a strong program in high performance computing will be tremendously important to our economic competitiveness and national security, and government-wide coordination of this effort will ensure that the United States remains a global leader in high-performance computing for science, defense and industry.

The budget request also supports our ongoing commitment to leading-edge scientific facilities. The request ramps up construction of the Facility for Rare Isotope Beams at Michigan State University, which was dedicated on March 17. The request also continues construction of the Linac Coherent Light Source II—another example of the many cutting-edge DOE facilities that provide an unparalleled set of research tools to tens of thousands of science users.

In fiscal year 2015, we sustain our commitment to our highly productive Energy Frontier Research Centers and three Bioenergy Research Centers. The budget request also includes funding for the Office of Science's two Energy Innovation Hubs, which focus on batteries and converting sunlight to liquid fuels. I would also note that I have charged the Secretary of Energy Advisory Board to look at how we can evaluate and continue to improve the performance of the Department's Hub model moving forward. The Advisory Board's draft report was released late last month, and I would be happy to discuss its findings once the report is finalized.

Crosscutting Initiatives

Finally, we have identified a number of areas for crosscutting initiatives to tackle common challenges and recognize shared opportunities across multiple DOE offices. I have selected these initiatives because of their potential to be game-changers in energy and security, to add value through collaboration and leveraging DOE's full breadth of research and technologies, and to ensure there is no duplication of effort. These collaborative efforts extend across DOE's programs and National Labs and are designed to leverage the unique, first-class array of facilities and capabilities that exist across the DOE complex.

The grid modernization initiative implements a unified strategy to address institutional and technological challenges to creating a more secure, resilient, and flexible future grid. The initiative enlists the unique strengths and focuses of four offices: OE, EERE, EPSA, and the Office of Congressional and Intergovernmental Affairs.

The subsurface environment is critical to the United States for energy production, energy and CO_2 storage, remediation of existing legacy waste, and ultimate disposal of future energy wastes. With the subsurface crosscutting initiative, DOE is bringing together its Science, Fossil Energy, Environmental Management, Energy Efficiency and Renewable Energy, and Nuclear Energy programs into a coherent, coordinated approach to common challenges in characterizing, engineering, monitoring, and controlling subsurface systems in various geologic environments.

The exascale computing initiative continues research and development with our Office of Science and NNSA leading to the implementation of advanced computing systems that will be tremendously productive for science, defense, and our Nation's innovation leadership. An approach coordinated across DOE Offices as well as

across the government will help to accelerate that effort. The Department of Energy is part of an interagency effort to optimize investments to sustain our Nation's leadership in high performance computing to the benefit of our research capacity, our nuclear security and our industrial base.

Supercritical carbon dioxide (SCO_2) power systems have broad potential for substantially lower-cost, higher-efficiency energy in a number of energy areas. The supercritical CO_2 crosscutting initiative continues related work in renewable energy and fossil energy, and fully-funds a new 10-megawatt supercritical CO_2 technology electric power (STEP) demonstration project in the Office of Nuclear Energy.

Finally, the cybersecurity crosscutting initiative funds activities in four offices—NNSA, OE, Science, and the Chief Information Officer—to strengthen the protection of DOE from cyber-attacks, bolster the Nation's capabilities to address cyber threats, and improve the cybersecurity of the energy sector.

NUCLEAR SECURITY

The budget request provides $11.9 billion for our nuclear security missions, a 4 percent increase over fiscal year 2014, in support of national security priorities articulated in the 2010 Nuclear Posture Review, the Stockpile Stewardship and Management Plan, and the 2010 National Security Strategy of the United States, to secure nuclear materials globally, and to ensure protection of DOE's national security assets.

Weapons Activities

The Department of Energy is responsible for certifying a safe and reliable stockpile without testing, as long as we have nuclear weapons. While budget caps have put difficult constraints on the Nation's national security enterprise, the interagency planning process—involving the Department of Defense, Department of Energy, National Security Council, and the Office of Management and Budget—created a revised strategy and budget request that remains committed to the "3 + 2 strategy" to maintain a safe and reliable stockpile while reducing the numbers and types of weapons in the next two decades.

The fiscal year 2015 budget request for Weapons Activities is $8.3 billion, a $534 million or a 7 percent increase over fiscal year 2014, to maintain a safe, secure, and effective nuclear stockpile, and to strengthen key science, technology, and engineering capabilities and modernize the national security infrastructure. The budget request supports the revised strategy to achieve the B61–12 LEP First Production Unit (FPU) by fiscal year 2020 and complete production of the W76–1 warhead by fiscal year 2019. The strategy defers the W78/88–1 Life Extension Program by 5 years, achieves the W88 ALT 370 FPU in the first quarter of fiscal year 2020, and delays the Long-range Standoff warhead by 3 years to 2027, while evaluating the option for a future budget request. Under the strategy, the budget continues engineering design for the Uranium Processing Facility into fiscal year 2015, and it continues to support the Nation's current and future defense posture and its attendant nationwide infrastructure of science, technology and engineering capabilities. We are also continuing to make the investments necessary for maintaining continuity of plutonium capability at Los Alamos National Laboratory while reducing safety risks in the Chemistry and Metallurgy Research Facility and PF–4.

The budget request also includes funding for Defense Nuclear Security (DNS) to support DOE's physical security reform efforts emphasizing mission performance, responsibility, and accountability. The request also provides funding within Weapons Activities to sustain emergency response and nuclear counterterrorism capabilities that are applied against a wide range of high-consequence nuclear or radiological incidents and threats.

In short, the budget request continues to support interconnected critical life extension programs; rebuilding of infrastructure; and the continuation of the science and engineering base that we will need in the long run for certification of the Nation's stockpile.

Defense Nuclear Nonproliferation

The Defense Nuclear Nonproliferation (DNN) fiscal year 2015 budget request is $1.6 billion, a $399 million reduction from fiscal year 2014. The Office of Defense Nuclear Nonproliferation continues to support U.S. leadership in nonproliferation initiatives both at home and abroad that increase global nuclear security. While we will continue to support a very robust program, the DNN budget reflects a substantial reduction, which is a result of difficult choices within our prescribed budget caps. Further, more than half of the reduction to DNN's budget is due to reduced funding for the Mixed Oxide Fuel Fabrication Facility.

DNN has had many successes in recent years. Since the President laid out his nuclear security agenda in 2009, DOE's Office of Defense Nuclear Nonproliferation (DNN) has removed or confirmed the disposition of over 3,000 kilograms of highly enriched uranium (HEU)—enough material for more than 100 nuclear weapons. These removal activities have resulted in 11 countries plus Taiwan becoming HEU-free. DNN has also overseen the downblending of roughly 13 metric tons of surplus U.S. HEU, and cooperated with Russia in the downblending of about 2 metric tons of Russian HEU. I have just returned from the Nuclear Security Summit in The Hague where the United States and Japan announced a program to remove hundreds of kilograms of HEU from Japan's Fast Critical Assembly.

After the conclusion of a 4-year accelerated effort, the budget request supports continued efforts to secure or eliminate the world's most vulnerable nuclear weapon materials. The Global Threat Reduction Initiative will continue to convert or shutdown HEU reactors, remove vulnerable HEU and plutonium, and protect additional buildings containing high-priority materials. The research and development program will continue to improve capabilities in nonproliferation and foreign weapons program activity monitoring.

The Fissile Material Disposition program remains a vital commitment. However, as part of an ongoing analysis of options to dispose of U.S. surplus plutonium, it has become apparent that the Mixed Oxide (MO_X) Fuel Fabrication Facility will be significantly more expensive than anticipated, and therefore, the budget request places the MO_X Facility in cold stand-by while the Department evaluates plutonium disposition options. While we remain committed to the disposal of the 34 metric tons of weapons plutonium, we must go into a standby mode while we look at the full range of options.

Naval Reactors

The Office of Naval Reactors supports the U.S. Navy's fleet of aircraft carriers and submarines by maintaining its unique infrastructure and advanced naval nuclear capabilities. The fiscal year 2015 budget includes funding for Naval Reactors operations at four Program sites including two laboratories, two operating prototype training reactors and spent fuel handling operations

Naval Reactors' request for fiscal year 2015 is $1.4 billion, an increase of 26 percent ($263 million) over fiscal year 2014 spending levels. The increase is critical to ensuring maintenance of the high standards required to operate the U.S. Navy's nuclear-powered Fleet and executing its National Security mission. It further funds research, development, engineering and testing required to support operating and future nuclear powered warships.

The Program is advancing the design of the life-of-ship core for the OHIO-class Replacement submarine and meeting scheduled milestones for manufacturing and development efforts being performed as part of the Land-based Prototype Refueling Overhaul. Naval Reactors continues conceptual design for recapitalizing its spent fuel handling facility in Idaho. The facility is critical to meeting the Navy's aircraft carrier refueling schedule.

NNSA Federal Salaries and Expenses

The fiscal year 2015 budget request includes $411 million for NNSA Federal Salaries and Expenses, formerly the Office of the Administrator, to support the staffing and Federal support needed to meet mission requirements. The $33 million increase over fiscal year 2014 primarily results from the congressionally-directed transfer of Corporate Project Management and $20 million to move the Albuquerque Complex to a different leased facility.

MANAGEMENT AND PERFORMANCE

The fiscal year 2015 budget request provides $6.5 billion for management and performance programs, to support efforts to manage more effectively and to meet our legal and moral obligations to clean up nuclear waste from the Cold War. As mentioned, a suite of efforts supported by the budget aim to improve how effectively we carry out our missions for the American people.

The budget request moves responsibility for the Environmental Management program from the Under Secretary for Nuclear Security into a mainline responsibility for the Management and Performance Under Secretary in order to improve departmental management and execution of some of our most technically-complex cleanup missions. We are currently implementing a reorganization to establish an enterprise-wide approach to health, safety and security that improves both execution and accountability. We continue to support diversity, small businesses, and Native Americans across activities at the Department.

We are pushing forward initiatives to improve the strategic partnership with the National Laboratories including by establishing a National Laboratory Policy Council and a National Laboratory Operations Board to address strategic and management issues with leadership from the Department and the Laboratories. We are also working to improve delivery and reduce the cost of human resource functions and IT services, to strengthen management through new cyber and incident management councils, and to institutionalize more effective enterprise-wide project management by convening a senior-level working group with representatives from across the Department.

Environmental Management

The Environmental Management (EM) program is responsible for the cleanup of millions of gallons of liquid radioactive waste, thousands of tons of used nuclear fuel and special nuclear material, and large volumes of transuranic, mixed, and low-level waste and contaminated soil and water. The program also supports the deactivation and decommissioning of thousands of excess facilities across the complex.

The EM Program has achieved a number of recent successes. To provide just a few examples, the program has completed cleanup at 91 of 107 sites across the country and significant portions of the remaining 16 sites. Sites that once housed large industrial complexes, like Rocky Flats in Colorado and Fernald in Ohio, are now wildlife preserves. In December 2013, EM closed two additional radioactive waste storage tanks at the Savannah River Site, a major milestone that brings the total number of tanks closed to six. At Oak Ridge, EM recently completed demolition of the K–25 facility, a mile-long, facility that was once the world's largest building under one roof. EM has decommissioned and demolished another 2 million square feet of excess facilities at the Idaho National Laboratory. And at Los Alamos National Laboratory, EM is on track to meet its commitment to complete the removal of all above-ground combustible transuranic waste by the end of June, despite the temporary closure of Waste Isolation Pilot Plant.

The fiscal year 2015 budget request provides $5.6 billion for Environmental Management to meet the Nation's legal and moral imperatives for environmental remediation at DOE sites. The budget request continues to support cleanup progress at 16 sites across the DOE complex, including continued progress on environmental management of the former uranium enrichment facilities at Oak Ridge, Portsmouth, and Paducah. EM has successfully completed many cleanup projects. What remains are some of the most complex cleanup efforts.

For example, the request supports continued construction of the Hanford Waste Treatment and Immobilization Plant (WTP) and efforts to resolve the project's remaining safety and technical challenges. Consistent with the Department's revised option for WTP, which is designed to move the WTP toward immobilization of waste as soon as practicable while resolution of technical issues continues, the fiscal year 2015 budget includes support for analysis and preliminary design of a Low Activity Waste Pretreatment System. This approach demonstrates a commitment to complete the Waste Treatment Plant in a realistic and sustainable way. This will give Congress and the affected communities' stronger confidence in the Department to get the job done. We will also continue making tank waste cleanup progress at Savannah River and Idaho.

The Budget also proposes $172 million for Legacy Management (LM), the final element of site remediation and closure after active remediation is complete. LM fulfills the Department's commitments to ensure protection of human health and the environment and ensure all contractual obligations are met.

CONCLUSION

The Department of Energy's fiscal year 2015 budget request will allow it to deliver the innovative and transformative scientific and technological solutions to energy, security, economic, and environmental challenges facing the United States in the 21st century.

Through its Science and Energy programs, the budget request will further the President's Climate Action Plan to cut carbon pollution while reducing America's dependence on foreign oil and will support an all-of-the-above energy strategy. The budget request for Nuclear Security programs will advance the President's vision for reducing the levels of nuclear weapons in the world, strengthen nonproliferation efforts, and combat nuclear terrorism. Finally, the request for Management and Performance programs will allow DOE to address the legal and moral imperative of cleaning up legacy nuclear waste and to better manage our programs on behalf of the American people.

Thank you, and I would be pleased to answer your questions.

Senator FEINSTEIN. Thank you very much.

In the interest of comity and non-partisanship and progress, Leader, if you would like to——

Senator ALEXANDER. Justice and truth.

Senator FEINSTEIN. Oh, justice and truth, absolutely.

If you would like to ask your questions now, please go ahead.

THE PADUCAH GASEOUS DIFFUSION PLANT

Senator MCCONNELL. Well, thank you very much, Chairwoman Feinstein and Senator Alexander, for the opportunity to make some brief comments and interact with the Secretary on an issue very important to my State.

Mr. Secretary, you and I have talked before, and I'm here to inquire again about your department's long-term plans for clean-up at the Paducah Gaseous Diffusion Plant.

For 60 years, the plant has been the major economic driver in far-western Kentucky. The facility, as you know, is now transitioning following the Administration's decision to cease enrichment activities there.

I want to thank you for the attention you've given the Paducah site, and in particular your work on future energy development opportunities there.

However, I remain deeply concerned with the Department's long-term plans for clean-up at the site. As you know, the Administration's decision to cease enrichment at the facility has already led to hundreds of layoffs of hard-working, highly skilled Kentuckians and has created a great deal of hardship and anxiety in the community.

As I've noted in our previous conversations, there are certain steps that I hope you'll take to mitigate the impact of the facility's eventual closing by moving forward with this vital clean-up work.

In that regard, I understand the Department intends to roll over some funding that was requested by the Administration last year and appropriated for fiscal year 2014 into fiscal year 2015. So what is the Department's clean-up plan for fiscal year 2014, and how many jobs do you expect those activities to create?

Secretary MONIZ. Thank you, Senator. We have enjoyed the opportunity to work with you and other members of the delegation in terms of Paducah's future. I would note that basically it was the company that decided to stop enrichment for market reasons. Now that will return to us and, of course, our job is to both go towards D&D (decontamination and decommissioning) while at the same time trying to work to get new activity at the site, as you mentioned, as we did last year.

In terms of the rollover, we are now negotiating the contract for that handover. These large contracts typically in EM (Environmental Management) have been 12- to 15-month affairs. They're very complex. They're very long term. They're very, very large contract commitments.

Senator MCCONNELL. That leads to what I was going to ask you.

Secretary MONIZ. We are trying to accelerate that.

Senator MCCONNELL. Yes, I was going to ask you when you thought that negotiation might be completed.

Secretary MONIZ. We're trying to accelerate that into the 10-month timeframe, which would be the end of the summer time period. That, in turn, will determine how much carryover there will be, which we currently estimate will be in the $50 to $70 million range that we will apply to work in fiscal year 2015. So that's the basic structure.

Senator MCCONNELL. I was troubled to see the phrase "cold and dark state" used by the Administration to describe a potential condition for the Paducah facility in a recent Department budget document. I expect the Department to make decommissioning and decontamination at Paducah a top priority. Is it your intention to begin full D&D at the Paducah site as soon as possible?

Secretary MONIZ. We certainly want to move into D&D as soon as possible, and that's going to be a discussion in terms of the resources available to the program. But we want to do that as soon as possible. It's certainly in our interest, and I think it's appropriate for the community.

Senator MCCONNELL. The site has gone without a dedicated on-site manager for some time as to the vital position as the facility continues its transition. Do you have any idea when you're going to fill that position?

Secretary MONIZ. My understanding is the applications are closed. We will fill the position, and my understanding is we are just evaluating the final candidates. I can get back to you with a more precise date.

Senator MCCONNELL. Yes, that would be helpful, because I think everybody is anxious to know when we're going to get somebody in that position.

And finally, Senator Feinstein, just one more question. I've heard continually from the community about the frustrating lack of communication from the Department regarding these long-term clean-up plans for the site. Will you please work to ensure the Department takes the community's thoughts and concerns into consideration when developing these plans and communicate them more effectively?

Secretary MONIZ. We will certainly try. As you know, I've met with the mayor and others from the town. I think, frankly, getting our full-time manager in place hopefully will be a major part of that improved communication.

Senator MCCONNELL. So let me just wrap it up by saying that you know, you've been very responsible in this, you know that this is the single biggest driver of the economy in far-western Kentucky. This is a huge transition for those folks, and to the extent that you continue to focus on this, we would all be grateful. This clean-up is obviously going to go on for a number of years, and I hope it will enjoy a high priority with you.

Secretary MONIZ. Thank you.

Senator MCCONNELL. Thank you.

Senator FEINSTEIN. Thank you, Senator.

We'll go back to regular order here.

NON-PROLIFERATION PROGRAM FUNDING

Mr. Secretary, I appreciate your comment, and I wrote it down: "I want to dispose of 34 tons of weapons plutonium and have the Russians do the same." In this budget, I don't see how you do it.

If I understand what this is, the time goal set in 2012 for removing highly enriched uranium from 200 reactors around the world was 2022. The 2013 budget let this goal slip 8 years, to 2030. Your budget submission lets this goal slip another 5 years, to 2035. This simply is unacceptable at the same time we're pouring money into the modernization of certain warheads. It's just unacceptable.

As another example, by 2025, the United States would have secured the most dangerous radiological materials in over 2,000 buildings in the United States. Now instead, your budget submission lets this effort slip 20 years, to 2044.

Has there been a change in threat assessment that I'm not aware of? Are terrorists no longer interested in acquiring nuclear or radiological bombs for improvised nuclear devices and dirty bombs? I don't understand how you can defend this budget on non-proliferation cuts.

Secretary MONIZ. Well, Chairman Feinstein, as I said and as you know, we certainly have a very constrained 2015 budget, and Administration-wide we proposed again the stockpile plan that we felt minimized the cost but yet achieved what has been agreed to I think very broadly in terms of nuclear posture review what we need for a safe and reliable stockpile without testing. Given that, we had to make some tough choices, and that appeared in many places.

Now, as I say, the things like the GTRI (Global Threat Reduction Initiative) program, et cetera, they do have reductions, but I'll put it in the glass-half-full context at least, that I think we have accomplished a tremendous amount. There has been a surge, really, over the last 4 years with 12 countries, all HEU removed from them, including I think three in the last year, year-and-a-half.

We will continue that program, and I can assure you that I personally and, as you said, the President are very, very much committed to the non-proliferation program, and we hope that the resources will in the future allow us to accelerate.

THE INTERNATIONAL THERMONUCLEAR EXPERIMENTAL REACTOR

Senator FEINSTEIN. Mr. Poneman, ITER, I'm very concerned about it. The costs are now between $4 and $6 billion to us, with $850 million spent to date. Major construction will be completed no earlier than 2023. That's another 4-year slip. And in October 2013, independent management review of the project found serious project management challenges, which could lead to serious, significant cost increases and schedule delays.

I'm really beginning to believe that our involvement in ITER is not practical, that we will not gain what we hoped to gain from it, and instead this money could much better be spent elsewhere.

Mr. PONEMAN. Chairman Feinstein, we share precisely the concerns that you've just stated, and indeed quite accurately in your opening statement. In fact, one review that we chartered ourselves

found many of the shortcomings that you've identified, and a very hard-hitting management assessment.

What I can assure you, Senator, is we have used these tools, and particularly the management assessment, which went to all the seven participating entities, the European Commission and six nations in the ITER council to say very bluntly and very clearly that we need to respond, and the international organization running the ITER project has to respond to all of those management assessment recommendations, has to come up with a corrective action plan, and has to execute it, and we are very much focused on that and holding them accountable to that, because it is critically important, if the project is to succeed, that we get our arms around these exact problems that you state.

Senator FEINSTEIN. Well, we'll talk more about that.

Senator, would you like to proceed with questions?

Senator ALEXANDER. Thank you, Madam Chairman.

I associate myself with the Chairman's comments about ITER. I don't need to repeat them.

I'd like to make a comment, and then I'd like to ask a question and give the Secretary a chance to use the rest of the time to comment on the question, if he'd like to.

My comment—and we can talk about it later—is I'm not very impressed with a budget proposal to set aside 5 percent of each Energy office's annual R&D (research and development) budget as an incubator to support technologies that aren't included in the program plans—in other words, not included in congressional oversight. As indicated, you like to fund novel projects such as the airborne wind turbine, which is basically a kite with blades that spins around in the air, which should be a fascinating thing to see.

But I do support the idea of giving the lab directors 6.5 percent of their budgets for what they think is important and novel. I do agree with that. I think that's a good idea. But I don't like the 5 percent set aside for each of the divisions, and I'd like to talk with you about that sometime.

COST SAVINGS FROM IMPROVED PROJECT MANAGEMENT

But I'd like to go back to what I talked about in my opening remarks. I mean, you have within your department in the NNSA, almost all, the largest Government construction projects in the country. You've got them all, just about, all the biggest ones, and they're headed to the moon in terms of cost. And if I'm concerned—I'd like to double energy research. Senator Feinstein is concerned about non-proliferation. We're talking about saving billions of dollars if we do a better job of cost control on these big projects.

One of them is in my home State, the uranium processing facility. It's gone from, early, a $650 million estimate to maybe $4.5 to $6.5 billion. Well, Tennesseans, we like the jobs, we like the spending, we have terrific employees who work there, but we don't want the Government wasting our money. I mean, we pay taxes too. And I suspect that in other States which have these big projects, people feel the same way, and I know you do, too, Mr. Secretary.

The problem has been how do we get a handle on these big, complex projects? So my question is this: Does the red team experience so far—and I know we haven't got a report yet on the uranium fa-

cility. But does the Department's Layman Review, your procedure by which you use to control cost in the Office of Science, which has worked pretty well, and this beginning process that you've used with this huge facility at Oak Ridge, does it offer promise for use on other major construction projects, perhaps even nuclear weapons?

I mean, this is a 60-day process. That's all it is. And it's an intensive thing. And then I think the recommendation will be that it be done every 6 months, that you don't just do it once and then go away and worry about something else, all the way through to the end. It's such a simple thing, but it's the question of accountability and who's on the flagpole and who's responsible for a specific result.

Can you talk about whether this offers promise? And then we'll talk about it again at other times.

Secretary MONIZ. It certainly does, and as you implied, it effectively has been used previously. The Science approach is kind of a red team in the sense that Danny Layman was always supplemented by outside experts. Another one that I'll mention is on the plutonium facility. It was effectively a red team. That has led to the modular approach. The WTP (Waste Treatment and Immobilization Plant) at Hanford was effectively a red team that identified previously unidentified technical problems and provided at least the start for us to provide a new framework.

At UPF (Uranium Processing Facility), we are committed to $6.5 billion. We are committed to being out of the 9212 building, which we hope can be maintained safely until 2025. And the red team that Thom Mason is heading is absolutely critical to looking at what, in effect, will be a modular-type strategy and a phased strategy that we can accomplish all that we need in terms of uranium facilities, uranium content for our weapons, and do it within that budget.

I would also mention that in my first weeks we put together a cross-agency project management group with the Science people, the EM people, the NNSA people. We are trying to get best practices put in. They are all going to be a little bit different in the way they do it, but with a fundamental enterprise-wide set of principles, and that project management function, the enterprise-wide one, will be within the management and performance organization even as Science and NNSA, again, operate their review processes using those principles.

Another, as I mentioned, we will not move forward with base-lining until we have 90-percent design, and we want to be realistic. For example, in the WTP project at Hanford, we declared we can do a phased process; we still have some unanswered problems. We will not baseline that part of the project.

So if we can bring realism and discipline, shared practices, what works—the red team is part of that—I'm certainly hopeful that we're going to bring these things under control.

Senator ALEXANDER. Thank you, Madam Chairman.

Senator FEINSTEIN. Thank you, Senator.

Senator Collins.

OFFSHORE WIND ENERGY

Senator COLLINS. Thank you, Madam Chair.

Mr. Secretary, I'm very pleased today to have the opportunity to talk with you about what I view as being one of the most promising renewable energy technologies that the Department and our country are pursuing, and that is deep-water offshore wind energy.

This innovative technology has the potential to make the United States the global leader in a field of clean energy development, and also to create jobs right here at home. We are making progress, as you know, in developing the potential of offshore wind. One project from my home State of Maine actually received mention in the Department's budget request, which noted that the project at the University of Maine recently became the first grid-connected offshore wind turbine in the United States and represents the first concrete composite floating platform wind turbine to be deployed in the world.

I am, however, concerned that this is a global race, and when you look at what's going on in Europe, Europe has built dozens of offshore wind projects with an installed capacity of nearly 6,500 megawatts. The United Kingdom has set a goal of producing nearly one-quarter of its electricity from offshore wind in the 2020s.

So what my hope is is that we don't lose this technological edge to a foreign country but rather that the United States become the global leader in this technology. I'm pleased that the Administration's budget suggests a commitment to developing this technology, and I know that DOE is approaching a decision to select three of six projects for further funding.

My question to you is two-fold. One, is the Department looking at making us technological leaders, and the factor of creating domestic jobs? And second, is the Department committed to a multiyear approach? Because obviously, just 1 year's funding is not going to allow us to achieve this goal.

Secretary MONIZ. Yes, thank you for the question, Senator Collins. There is no doubt, as is evident in our budget, that offshore wind is what we are focusing on principally in the wind program. The issue of stimulating our domestic economy is very important. I will note, for example, the progress of the last several years where, in today's onshore wind, we have gone from roughly 25 percent of the supply chain not that long ago to about 70 percent of the supply chain now being domestically sourced.

As one goes to offshore wind, we want to make sure we continue that. So that involves demonstration projects. As you said, we will down-select three probably in the early summer to move those forward. We are also in the budget proposing moving forward with more research studies in terms of how you integrate with grids in general. Some places are easier than others to do that.

But also, at the same time, going back to the jobs, et cetera, and domestic manufacturing, as you know, we have a strong emphasis on the manufacturing R&D, if you like, moving that forward with hubs. For example, we just announced a month ago or so another manufacturing initiative on composite materials. One of the applications of that will be very large wind turbine blades. And as you

know, these offshore turbines are going to get very, very large, 5 to 7 megawatts per turbine.

So we're moving, we think.

THE WEATHERIZATION ASSISTANCE PROGRAM

Senator COLLINS. Thank you. I only have 20 seconds left, so I'm just going to tell you the topics and ask permission to submit the questions for the record.

One is the Weatherization Assistance Program. This is so important to permanently reduce energy costs for homeowners, particularly in a State like mine, which has the oldest housing stock in the nation, and obviously rather cold winters, though I'm mindful that I'm sitting next to the senator from Alaska. But this winter we beat you, I believe.

And I do have a technical question which I'm going to submit about the new $15 million competitive State-level demonstration of financing methods for multifamily units. I'm not quite sure what you're proposing there, and I will submit that for the record.

And finally, with the Chairman's agreement, I will submit some other records, including one on the need for finally for us to have a nuclear waste storage site. Maine Yankee, Maine's nuclear reactor, has been closed for years and years, but we have nowhere to ship the nuclear waste.

Thank you.

Senator FEINSTEIN. Thank you, Senator. I think we're all in agreement with your last commentary, and hopefully our bill will have a pilot project in it, and Senator Murkowski and Senator Landrieu have before them a big bill that we all have worked on for some time. So we are very hopeful that we'll be able to move with the nuclear waste policy.

Secretary MONIZ. Amen.

Senator FEINSTEIN. Amen, yes.

Senator Cochran, you are next.

NAVAL REACTORS

Senator COCHRAN. Madam Chairman, on a related subject, the budget request submitted for our review supports additions to the Office of Naval Reactors to support our Navy's fleet of aircraft carriers and submarines that are powered by nuclear power.

My question is: This is a 26-percent increase over the current year funding level. That sounds like a substantial increase. But I wonder, is that enough to accommodate the need for storage facilities and the processing and other execution of the national security mission that goes with these reactors?

Secretary MONIZ. Well, I believe Admiral Richardson feels that he can accomplish his mission with this rather substantial increase. The Department of Defense was certainly very supportive about this. As you know, it's for doing things like moving forward to the Ohio-class replacement, and recapitalizing spent fuel handling at Idaho. So, certainly in discussing with Admiral Richardson, he believes this budget would certainly allow him to carry forward on these critical renewal technologies, if you like, for the nuclear Navy.

Senator COCHRAN. Thank you, Madam Chairman.

Senator FEINSTEIN. Thank you very much, Senator.
Senator Landrieu.

THE MO_x PROGRAM

Senator LANDRIEU. Thank you very much.

Mr. Secretary, thank you for appearing recently before a large group of very influential business leaders from Louisiana. I appreciate your comments about the all-of-the-above strategy and your focus on the future of natural gas, which is so important not just to our State but the whole country.

But I do want to associate myself with the remarks of the chairman, about her concerns regarding the nuclear proliferation issues and the disposal of the core of these warheads and how this is working out for the Nation.

The initial decisions, as you know, years and years ago were to retire these nuclear warheads. The idea, after study and study that went on, when Bennett Johnson was the chair of Energy, which is 20 years ago, was decided that there would be some new technologies. We know it today as mixed oxide fuel fabrication facility, which is MO_X. The work is being done, I think, in South Carolina, but the contractors are all over the country. The idea is to get rid of 34 metric tons, 8,000 warheads on the U.S. side and on the Russian side.

So my question is: There has been some push by the Department to move this facility into cold standby. I don't quite understand that. Number one, there is only $240 million in the budget. I think we need something like $500 million to continue the work. Why would we put it in cold standby? I understand the Department has already studied options for plutonium disposition in both the original environmental impact statement in 1999 and in 2012.

So my questions are: Did the Department previously conclude that MO_X was the preferred alternative? And if so, what changes have come up to make us move in a different direction, as opposed to staying steady on course and getting this done?

Now, my second question is related. Given that any change of course would require us to renegotiate with the Russians, don't you think that might be a little difficult under the present circumstances? Please respond.

Secretary MONIZ. Challenging. Senator Landrieu, to go to your first question, let me say that, first of all, when the plutonium disposition agreement was negotiated with Russia, there were multiple options, specifically MO_X and so-called immobilization as an alternative pathway. As time went on, then MO_X became the choice, in consultation with Russia.

The issue now is, I want to stress, that standby is not ending the project. In light of the extremely tight budgets, again in the 2015 budget, what we saw is one of these cases where the costs have gone very, very substantially up, again a $30 billion life-cycle cost for the overall MO_X project. Again, I want to emphasize—I mentioned it earlier, because there's been a lot of confusion caused when the contractors are speaking, they are speaking only about the fuel fabrication facility, which is about a $17 billion life-cycle cost in their estimate. So it's about $30 billion. The question is:

Could we continue that, and that is obviously a discussion for the Congress and the Administration.

Senator LANDRIEU. But this is a very important question for this committee, and I'm glad that the four corners are here, the energy authorizers as well as the energy appropriators, because this was a commitment that we made, a very important commitment to world stability and world peace and getting dangerous things easily out of the hands of terrorists. We have a contract with no alternative, with no alternative; an inability, in my view, to renegotiate with the Russians now or for the foreseeable future. And yet this budget is woefully underfunded for a project that's not only important to jobs here at home, which is a very important reason, but it's important to live up to the commitments that we have made.

So I want to agree with both the ranking member and the chairman that this budget is woefully undercutting these efforts with no real alternative.

Secondly, my time is out, so I'm going to submit my second questions, and I appreciate the potential development of wind and alternatives, but this renaissance of natural gas is game-changing for our country, for our strength abroad, our economic strength at home, our ability to build strong and more plentiful middle-class jobs. I want to submit a question about that.

And then finally, my third question will be about stepping up our partnership with Israel now that they have a big game-changer. They actually discovered oil and gas off the coast of Israel, our great ally in the Mideast, and what our country is doing to take advantage of strengthening this partnership and stabilizing the region.

So I will advance my questions in writing on those two things.

But, please, Madam Chair, I am extremely concerned about this MO_X facility, and I think Senator Graham shares those concerns. We've got to just keep this project moving forward in a cost-effective way.

Senator FEINSTEIN. Thank you very much, Madam Chairman of the Energy Committee. I think your words fall on shoulders that really agree with you. So I would anticipate some changes in our process. Thank you very much for the support.

Senator Hoeven, you were up here and your name is here, and you left for a short time, but I'm going to go back to you and recognize you.

Senator HOEVEN. Thank you, Madam Chairman.

Senator FEINSTEIN. Thank you.

THE KEYSTONE XL PIPELINE

Senator HOEVEN. The Keystone XL Pipeline has been in the process now for 6 years. The State Department released their final environmental impact statement towards the end of January. There is a 90-day comment period for agencies, one of which is yours. I think, then, the process is over, unless I guess the Administration can come up with something else.

But are you going to comment, and what are your comments on approval of the Keystone XL Pipeline?

Secretary MONIZ. Senator Hoeven, of course, all I can say right now is that we are generating our comments within the 90-day period, which is not yet up.

Senator HOEVEN. What are they?

Secretary MONIZ. Those are still in process.

Senator HOEVEN. You don't want to give us, like, a sneak preview or a hint?

Secretary MONIZ. I would have to talk to my staff.

Senator HOEVEN. Well, I would strongly encourage its approval. We worked awfully hard and, I think, met all of the requirements on repeated occasions. So I would strongly encourage you to recommend its approval.

LIQUEFIED NATURAL GAS EXPORT APPLICATIONS

The second question I have is there are a number of applications for LNG (liquefied natural gas) export, I think about 23 that have been provided to the Department of Energy. Some I think have been pending for between 1 and 2 years. Obviously, we have a situation in Europe where they're dependent on gas from Russia, and we need to work not only to help them and, I think, strengthen their hand so that they can stand with us to deter Russian aggression, but also it's an incredible opportunity for our country. States like mine and others are producing more and more natural gas. It's being flared off. We need markets for that gas.

So what can you do to expedite those applications? Again, I think we stand ready here in Congress to help in that process. I have legislation, along with others, that would provide approvals for those applications.

So what can you do, and are you willing to join with us in Congress to try to advance or accelerate that process?

Secretary MONIZ. Thank you, Senator Hoeven, again. Of course, I'm very happy to get together and discuss the process, which, of course, was established back in 2012, the current process.

A couple of points, if I may make, as context. First of all, we should kind of note that the approvals to date, which are conditional approvals—we should also remember that they won't actually come into existence until 2018, 2019, except for the first one, which will start at the end of next year. But the point is it's very important, I think, to get a scale. It's not like we haven't done anything. We have approved conditionally 9.3 billion cubic feet per day. That is very, very close to the entire LNG export of Qatar, by far the largest exporter in the world, so just to get an idea. This is an appreciable volume. It's not some small amount. Now, we have more to evaluate, clearly.

Secondly, when it comes to the issue of—and I understand that there are a lot of discussions in Congress and elsewhere about, for example, treating European countries as Free Trade Agreement countries, as one example.

I would just note that as part of our process, we have a legal obligation for a public interest determination that balances domestic market impacts with geo-politics, et cetera, environmental impacts.

We do not approve cargoes going to any specific place. We approve applicants to send gas to non-Free Trade Agreement countries. If we want to start directing cargoes, that would be a very,

very different way of getting into the business plans and commerce, et cetera. So I just note that as something that I think needs to be kept in mind.

Third, in the options of extending Free Trade Agreement privileges to countries without Free Trade Agreements, as a general comment I would note that those agreements typically are, as you well know, a long, arduous negotiation of give and take. The question is whether we want to go around that give and take in terms of Free Trade Agreements, whether we want to put aside the public interest determination.

I think these are all questions that we had discussed and which I'm certainly very happy to do.

Senator HOEVEN. Projects like Keystone XL Pipeline and approving applications for LNG export, for example, I put together in the Energy Security Act, legislation I have submitted. We need that both for energy security here and to help our allies, and I'd ask for your help in accomplishing those things.

Secretary MONIZ. And I would just add, if I may, that—sorry if we're over, so I'll be very short. But we have always said that the energy insecurities of our allies is a national security issue for the United States. So this is certainly part of the geo-political considerations.

Senator HOEVEN. Thank you, Madam Chairman.

Senator FEINSTEIN. Thank you, Senator.

Senator Udall.

THE B61 LIFE EXTENSION PROGRAM

Senator UDALL. Thank you. Thank you very much, Madam Chair.

Mr. Secretary, Mr. Under Secretary, thank you both for being here. I want to thank you for your continued advocacy of the B61 Life Extension Program. This program is important for our national security, and I believe the scientists and engineers at our national labs have made great progress on this endeavor. Full funding of the program is important to maintaining this progress. Do you agree that Congress needs to fully fund the B61 Life Extension Program?

Secretary MONIZ. Yes. Well, in the discussions that led to our submission with the military, we did slip 1 year, but they agree that 2020 delivery of the first production unit would meet military requirements, and that would require the budget as we have submitted to meet that date.

Senator UDALL. Which is full funding.

Secretary MONIZ. Correct.

Senator UDALL. Yes. Well, I want to thank you for that answer and for the Department of Energy's commitment to the B61 LEP. While the B61 LEP progresses, it is important to note that it is not only our legacy weapons that are in need of refurbishment but the infrastructure of the nuclear enterprise is continuing to age, and many of our buildings, especially the CMR (Chemistry and Metallurgy Research) in Los Alamos, are in need of replacement facilities. Unfortunately, due to NNSA mismanagement of many of these large projects, the Nation's analytical chemistry and materials characterization capabilities are at risk for the future.

THE CHEMISTRY AND METALLURGY RESEARCH REPLACEMENT FACILITY

Mr. Secretary, the NNSA's Governance Review Panel has also highlighted the problems NNSA has had with managing such large programs. What are the next steps to address the CMR replacement facility at Los Alamos, and what are the Department of Energy's plans to work with the NNSA Governance Review Panel once their final report is released to reform the NNSA, get these projects on track, and ensure that taxpayer money is not wasted in the future?

Secretary MONIZ. Thank you, Senator. Actually, on the B61, I would add one other thing. Of course, very important for that is also the way it will lead to a decrease in our number of weapons and ultimately the retirement of the B83. So I think this is a very important program to streamline our stockpile.

Senator UDALL. And what you're talking about there is if you can have fewer weapons, they're more accurate, they're more modern, then you would reduce the overall stockpile.

Secretary MONIZ. Exactly, fewer models and eliminate some entire systems.

Senator UDALL. Yes, yes.

Secretary MONIZ. On the plutonium facility, again, in the spirit in which we discussed earlier with Senator Alexander, I think the modular approach will meet our needs. We clearly need to be out of the CMR that was built in 1952. Historical significance is not a criterion for an active plutonium facility. But we will be using refurbished radiological laboratories, the PF4, and then we will be adding modules to eventually get to the 50 to 80 pits per year requirement down the road.

Senator UDALL. And have you fleshed out the modular design and where you're headed on that?

Secretary MONIZ. The first two phases are pretty well set, and the third phase on the modules, the study is continuing, but we should be there soon.

Senator UDALL. And this Governance Review Panel that you're going to get the final report on that, I think, where do you see it?

Secretary MONIZ. Yes. We expect the Augustine-Mies panel report in July. We've had very robust, very good discussions with them. I'll say one thing quite frankly. They have said, including in their hearing a few weeks ago, that having engagement at the level of the Secretary in these issues is critical. I can assure you there will continue to be engagement in these issues. I believe that we have taken a set of steps in terms of governance, in terms of culture change which are completely in the direction that Norm Augustine and Rich Mies, Admiral Mies have recommended.

As an example, just one example, the reorganization of our nuclear security functions with much clearer lines of authority, which has important features like the site officers reporting directly to the administrator and not having several intermediate steps.

Senator UDALL. Thank you, Mr. Secretary. I know I'm out of time, but I'm going to submit for the record two questions, one on the waste isolation pilot project and where we're headed there and with those recommendations, and then also I've been trying to work with members of the committee on technology transfer, which

I think you've had several reports within the agency to recommend you move forward. So we'll put those on the record.

But thank you very much and appreciate your timely response to those questions.

Thank you, Madam Chair.

Senator FEINSTEIN. Thank you, Senator Udall.

The vote has begun. It's the first vote due at 3:30. It's now 3:35. We have three members to go yet, which means we will not conclude by the second vote. So my plan would be to go down and vote right now and you handle the meeting, if you will, and then come back, and hopefully we can conclude.

So if that's agreeable, the next person up is Senator Graham.

THE MO_X PROGRAM

Senator GRAHAM. Thank you, Madam Chairman.

This has sort of been a MO_X-centric hearing, and I just want to acknowledge I think you're a very good choice to run the Department of Energy. I want to thank the Chairman, Chairlady and the Ranking Member for the support they've given the MO_X program. Senator Landrieu has been unbelievably helpful.

I think you gather that we're concerned about MO_X.

Secretary MONIZ. I am, too.

Senator GRAHAM. Okay. I know you're very smart, so you got where we're going on MO_X.

Thirty-four metric tons of weapons-grade plutonium could result in how many nuclear weapons?

Secretary MONIZ. Well, that's a question that could be answered at various levels, but let's just say 9 kilograms is the IAEA (International Atomic Energy Agency) significant quantity for plutonium.

Senator GRAHAM. So are we talking about hundreds or thousands?

Secretary MONIZ. Thousands.

Senator GRAHAM. So here's the question for the committee: What is it worth to the world and to the country to take 34 metric tons of weapons-grade plutonium off the market in Russia and the United States? That's the question, because you're talking about thousands of warheads.

As to the MO_X program, it is in South Carolina; that's correct?

Secretary MONIZ. Correct.

Senator GRAHAM. Okay. I have been dealing with this for well over a decade, and so have you. Do you have an analysis showing the $30 billion life-cycle cost of the MO_X program?

Secretary MONIZ. Yes. The report is now undergoing interagency comment, and we expect to have that completed and responded to by the end of this month.

Senator GRAHAM. Okay, thank you.

Now, how much would it cost to actually build the facility? That's not $30 billion, is it? Thirty-billion is the life-cycle cost for all three buildings; correct?

Secretary MONIZ. Correct.

Senator GRAHAM. Okay. So it's about $7 billion; is that correct?

Secretary MONIZ. We would say the to-go cost for the building itself is $6 to $7 billion.

Senator GRAHAM. Okay. Sixty percent of the construction is complete; right?

Secretary MONIZ. By some counting, yes.

Senator GRAHAM. This committee last year, thanks to the Chairman and the Ranking Member, dedicated over $403 million to continue construction. The Administration has put it in cold standby. Is that your plan?

Secretary MONIZ. The proposal is that, again, as we know, the question is whether the budget can support this. So we thought that we——

Senator GRAHAM. But my question is——

Secretary MONIZ [continuing]. Would pause to evaluate options.

Senator GRAHAM. But my point is that this committee told you to build the MO_X program. We didn't tell you to study some other alternative.

Secretary MONIZ. That is our fiscal year 2015 proposal.

Senator GRAHAM. Well, I'll submit some questions along those lines. I've only got 2 minutes left.

The bottom line here is that the MO_X program is part of an agreement with the Russians; is that correct?

Secretary MONIZ. Yes, it is, sir.

Senator GRAHAM. Okay. So we've told the Russians that we're going to MO_X our plutonium by turning it into commercial-grade fuel to be burned in a variety of light-water-type reactors; is that correct?

Secretary MONIZ. Yes, it is.

Senator GRAHAM. Okay. My point is that I want to make sure that we don't break our agreement with the Russians. I want to make sure that the people of South Carolina are not left holding the bag, because there is no alternative to MO_X that's viable, that can meet the time periods required, and that's cheaper.

Do you really, honestly believe there is a viable alternative to MO_X that will allow the disposition to go ahead sooner or on time and be cheaper?

Secretary MONIZ. There may be. But as we've discussed, all other alternatives require other discussions.

Senator GRAHAM. What would be some other alternatives?

Secretary MONIZ. Well, as I said earlier, the agreement that was reached with the Russians 15 years ago included MO_X and immobilization.

Senator GRAHAM. So where are you going to put this stuff when you immobilize it?

Secretary MONIZ. As I said, there are other issues to be addressed.

Senator GRAHAM. There is no plan. There is no viable plan to dispose of 34 metric tons of plutonium. There is nobody going to receive this in an immobilized state. The Russians have agreed to MO_X as the disposition plan 2 years ago. So I don't know where this is coming from, and I don't think it's coming from this Secretary, who is a very fine man.

This is a major decision for this committee to address. We're about to blow a chance to get thousands of nuclear warhead material off the market forever. You're breaking faith.

Do you agree with me that if you do this, States in the future are going to be very reluctant to deal with the Department of Energy, that if after 60 percent of a program is complete you put it in standby, you ignore the directions of Congress, you try to come up with an alternative when 60 percent of the program is complete, you change the game 60 percent of the way down the field, don't you think that would be a wet blanket over future dealings between States and the Department of Energy?

Secretary MONIZ. Well, we have certainly committed to moving the plutonium out of South Carolina.

Senator GRAHAM. I'm committed to the deal. I'm committed to the deal that you made with South Carolina. I'm committed to getting this stuff off the market and finishing the program that's 60-percent complete that the Nation needs. What is it worth to take thousands of nuclear weapons off the table and the world in which we live in? It's worth a lot, and we can do this a lot less than $30 billion.

Thank you, Mr. Chairman.

Senator ALEXANDER [presiding]. Senator Murkowski.

LIQUEFIED NATURAL GAS EXPORTS

Senator MURKOWSKI. Thank you, Mr. Chairman.

I want to go back to the conversation that we were having about natural gas, and I appreciate your statement, Mr. Secretary, that something to the effect of energy insecurity of our allies impacts our national security here.

I think you pretty much said that when you issued the license for Jordan Cove last month. The text of the order provides, "To the extent U.S. exports can diversify global LNG supplies and increase the volumes of LNG available globally, it will improve energy security for many U.S. allies and trading partners. As such, authorizing U.S. exports may advance the public interest for reasons that are distinct from and additional to the economic benefits identified in the LNG export study."

I think that pretty much speaks to the role that we can play here in this country when it comes to our exports and a recognition that we can be doing so much more for others.

Two questions for you. Do you have any plans to spend additional Department resources on commissioning yet another LNG export study, or are we done?

Secretary MONIZ. We are always re-examining the situation.

Senator MURKOWSKI. But re-examining is different than what we did with the export study.

Secretary MONIZ. Well, so I think we will have to reach a decision as to whether we feel—as we re-examine, as you know, a criterion that was set out in 2012, I believe, is to look at impacts with cumulative potential exports. And so we continue to look at supply data. We continue to look at demand data. For example, there has obviously domestically been an enormous increase in manufacturing there.

So we keep making these judgments, and I can't say whether or not that will lead us to say at some point we need a more formal updating of the analyses that we currently have.

Senator MURKOWSKI. Well, it is something that, again, you've laid the case out pretty clearly, I think, in this license, this conditional license for Jordan Cove. I would hope that we would continue on with the issuance of these licenses in a manner that is expeditious, that we don't pause, that we don't spend resources, additional resources on yet more studies.

You had mentioned the process that DOE currently has in place regarding the licenses, the licensing came about in 2012, and you and I have had a limited opportunity to talk about what flexibility you might have as Secretary to streamline the permitting process even further. You mentioned a little bit in your comments to Senator Hoeven.

I have very little time because I have to rush out to the vote here, but I would hope that you would look to whether or not there is a possibility to do some reordering within the queue. It is something that, while this process was set up in 2012 within the Department, it was not set up through legislation. It appears that you would have a certain amount of authority that if the Administration recognizes, as you did with the license in Jordan Cove, that this is truly advancing the public interest in moving forward with U.S. exports, it's something that I would hope that you would be considering as you are weighing these licenses and applications in front of you.

Secretary MONIZ. Again, we are very, very happy to come and complete our discussions, and with other colleagues here in the Senate, to see how we might go forward. Right now, as we discussed, there is a fairness issue in the sense that a specific ordering was established in 2012, and it does imply some level of obligation, I suppose.

THE NATIONAL STRATEGY ON THE ARCTIC REGION

Senator MURKOWSKI. Let me go to my next question, because this is something that I have asked every cabinet secretary as I've had an opportunity in these appropriations hearings, to inquire within your Department and the budget that is presented how you will seek to comply with the Administration's implementation plan for the National Strategy on the Arctic Region.

DOE is listed as the lead agency for three programs. You've got renewable energy resources, climate predictions, and integration of Arctic regional models. You're also the supporting agency for other projects.

So what I'd like to know is what funding is included within the Department's budget for the three programs where you are the lead agency, as well as any other projects that the Department is involved with. My concern is we are saying good things about the Arctic, but we're not seeing that translated into the budget that has come down from the President, and if we're going to say the Arctic is a priority, we have to match resources to the message.

Secretary MONIZ. Much of the work that we would do, for example, on some of the modeling is part of the ongoing programs. But with regard to things like R&D, for example, I charged the National Petroleum Council to do a study on what the Government, what DOE might do in terms of R&D specifically for the Arctic. So we will get that report back later on this year.

Senator MURKOWSKI. Perhaps if you and I can sit down to talk about Arctic strategy, I also have some questions for the record relating to marine hydrokinetic, as I spill my water all over me, and geothermal.

Secretary MONIZ. Hydrokinetic——

Senator MURKOWSKI. Marine hydrokinetic. It's got great resource potential. Methane hydrates, geothermal, and some other areas that are of particular concern to us in Alaska.

Secretary MONIZ. Be happy to discuss those with you.

Senator MURKOWSKI. Thank you.

THE WASTE TREATMENT PLANT

Senator MURRAY. Secretary Moniz, thank you. Welcome to, I think, your first subcommittee hearing. You and I have spoken several times since you became Secretary, and I do appreciate your commitment to the Waste Treatment Plant, WTP, and making progress on our shared goal of treating waste.

But despite our shared goal, I still find myself waiting after years, I will tell you, of waiting for a comprehensive plan on the Waste Treatment Plant. The WTP has now been under construction for over a decade, and we still do not have a real path forward, and significant technical issues remain unresolved.

The framework that you put forward in September, as you described it to me, was not intended to be a proposal but rather a document for discussion with the State of Washington. Well, I think it's pretty clear from the State's actions last week that we are past time for discussions. The State and I need to see action from your Department, be that on this framework or something else. It's time for us to move on this, and if the framework is the right solution, as your budget request suggests, then we must know that the technology is proven. We can't be reinventing the wheel again at this stage.

I wanted to ask you today how confident you are that the direct-feed, low-activity waste is the best course forward for the Waste Treatment Plant, and what is your level of confidence in your agency's ability to shift the WTP project into this new direction and provide proper oversight for the new facility?

Secretary MONIZ. Senator Murray, I'm really very confident that this phased approach, starting with DF Law, is the way to go. The DF Law will require one new facility but a very standard technology to clean up cesium, basically, and that will allow us to get going, and the State has agreed with that. So I'm very encouraged by that.

Then on the other pieces, the pre-treatment plant and the high-level waste, well, we just said, look, our approach is to be realistic. We can set some early milestones, but we have to resolve these technical problems on criticality and other things, and that will give us the baseline that we need for the rest of the project.

I believe in many ways this framework really is a tremendous improvement on the other framework, not only because the other framework couldn't work but also because, frankly, starting with the low-activity waste and gaining the experience of operating this manufacturing facility, producing glass, et cetera, will be invaluable. I'm very encouraged by this, but we were very up-front that

we cannot yet baseline the pre-treatment plant until we resolve some of these problems.

But we published something last week about a redesign of the pre-treatment plant already in terms of the tanks, which is going to solve a lot of the problems, not all of them but a lot of the problems, and we've committed to a second new facility, which is this new tank waste facility where mixing will go for the high-level waste.

Senator MURRAY. And are you confident in the technology on this?

Secretary MONIZ. I'm confident in the technology other than the questions I cannot answer today because of the research we need. We are going to do a full-scale tank demonstration with mixing. That will answer a lot of the questions. If that comes out as we expect, then I would say I am very confident. But we have to address these technical issues. We're being very up-front. They are not resolved. Previously, the plant was baselined with unresolved technical issues. So I'm just trying to be honest about it.

ENVIRONMENTAL MANAGEMENT FUNDING

Senator MURRAY. Okay. I appreciate that.

Well, I am also really concerned about the reductions that you made on the Environmental Management, EM, budget, making some deep cuts to clean-up sites across the country. The largest portion, of course, is from the Richland Operations Office. They have made significant progress on the 2015 Vision, and in particular on the hazards that could enter the Columbia River.

However, several high-risk projects close to the City of Richland, the Columbia River, and the Energy Northwest facility remain to be completed. The budget 2015 could hamper this progress, and it really is unacceptable for DOE to kick the can down the road on this, nor is it acceptable to me and the Tri-Cities community to put near-term Tri-Party Agreement (TPA) milestones at risk.

The Washington State Department of Ecology and others have told me that there are at least four, possibly more, Tri-Party Agreement milestones that will be placed at risk due to the budget proposal. Less than 24 hours after this budget proposal came out, OMB Director Burwell came in front of my committee, the Budget Committee, and testified that "legal commitments are something that are very important and the Administration takes very seriously and has put forward a budget that we believe enables us to do that."

Can you confirm with me that Director Burwell's commitment that the Federal Government will meet the legal obligations set forth under the Tri-Party Agreement within the fiscal year 2015 budget request?

Secretary MONIZ. Well, first of all, we are committed to both the WTP project and the TPA. After all, they are interconnected as well. So we understand, this is a system look at the site that we have to deal with, and the TPA milestones are very important, as are the Consent Decree milestones which, of course, we are now renegotiating with the new framework.

The issue is how do we best fit all of this into the available resources, and that's something I would love to be able to brainstorm on.

Senator MURRAY. Are you going to be able to meet those legal requirements with a $98 million cut?

Secretary MONIZ. I will have to look in detail at the specific milestones. I think it would be better if I got back to you on those specifics.

Senator MURRAY. Well, I would appreciate that in writing as soon as possible.

Secretary MONIZ. Okay.

Senator MURRAY. As you know, this is a really intense situation in our State now. We are all focused on it. We are well into the chairman's writing this mark, and we need to know from all of you if this is going to meet the legal requirements that are set forth.

Secretary MONIZ. We'll get back to you promptly.

Senator MURRAY. I'm deeply concerned it won't. Okay.

I have an additional comment, Madam Chairman.

Senator FEINSTEIN [presiding]. Please, go ahead.

Senator MURRAY. I just want to mention one final issue.

Washington State has really been a leader in efforts to develop and demonstrate and deploy a wide array of renewable energy technologies. A great example of this is the innovative marine and hydrokinetic research that is currently underway at our Northwest Marine Renewable Energy Center. It's co-managed by the University of Washington and Oregon State University.

I wanted to just ask you if you would work with me and the subcommittee to make sure that the Department is committed to developing these technologies. I think they're really important, but I just want you to consult with us and with everyone involved to make sure that the appropriate Federal agencies and stakeholders ensure that there's no harm done to our marine endangered species as we move forward.

Secretary MONIZ. Okay.

Senator MURRAY. Okay?

Secretary MONIZ. Yes.

Senator MURRAY. And on the other ones, I want you to get responses back to me as quickly as possible. I know you and the State are going back and forth on this right now. We have a few months, a month, less than a month to get our bills out, and we need to meet these legal requirements, and we need to know from you if we're going to be able to do that.

Secretary MONIZ. We'll be happy to work as closely as we can with you on all of that, and we'll respond to your specific question promptly.

Senator MURRAY. Thank you very much. I appreciate that.

Thank you, Madam Chairman.

Senator FEINSTEIN. Thank you, Senator Murray.

Senator Shaheen, welcome.

THE ADVANCED MANUFACTURING OFFICE

Senator SHAHEEN. Thank you very much, Madam Chair. I will try and be quick because I know we have votes, but I just want to take this opportunity to welcome Secretary Moniz.

It's very nice to have a chance to talk to you in this setting.

And, Secretary Poneman, it's nice to see you here as well.

I am certainly a strong supporter of energy efficiency efforts, and I have worked closely and had someone from the Office of Energy Efficiency and Renewable Energy up to New Hampshire, and I think there has been a great opportunity to work together. Certainly, the same is true of the Advanced Manufacturing Office, and I know that they work very hard on cost-effective programs to help the manufacturing base.

I have been working on energy efficiency legislation with Senator Rob Portman from Ohio, and one of the concerns that we've heard from some of the groups and businesses that we've worked with is that there are some concerns about program priorities and whether they can be better structured to maximize energy savings, economic development, and job creation. It's something that we've tried to address in our legislation, and I know we've worked with some folks in the office to try and do that.

But I wonder if you could talk about what steps might be taken within the Advanced Manufacturing Office to better engage with the stakeholders who the Office is designed to work with.

Secretary MONIZ. Thank you. Well, first of all, of course, the Manufacturing Office has got a number of initiatives. Perhaps the most visible lately has been the manufacturing hubs which are looking to provide kind of the foundational enabling technology, manufacturing technology advances that will underpin jobs in American manufacturing, and there are other programs with research.

But getting to the stakeholder question, I personally believe that what we need to do is to have a set of strong regional focuses, because I think different regions of our country really have different sets of challenges here.

So I think we'd be happy to work with you in terms of thinking about how to convene the appropriate groups. Certainly in industrial New England, this would be one example of that.

Senator SHAHEEN. Well, and certainly I think the hubs are a great idea. Unfortunately, we're not going to be able to have one in every State or every region, at least not in the near term. So thinking about how we can structure the program's priorities to address the kind of technology research that the stakeholders also envision as important I think will be critical as we look at how to be most effective through that program going forward, and your help with that would be very much appreciated.

Secretary MONIZ. I'd be happy to visit you in Manchester, an old manufacturing city.

Senator SHAHEEN. Good. That's very high-tech now, I would point out.

Secretary MONIZ. Yes, it is. Yes, it is.

THE BUILDING TECHNOLOGIES PROGRAM

Senator SHAHEEN. My other question has to do with the Building Technologies Program because, again, it has a similar interest in saving on energy and benefitting from energy efficiency. So in what ways can the Building Technologies Program ensure that it not only continues to develop new technologies but that it also facili-

tates that private sector adoption of those technologies and practices?

Secretary MONIZ. I think there are a number of mechanisms. First, of course, in programs like our loan program, there are opportunities for energy efficiency, and we will be having another solicitation later on this year which is both efficiency and renewables.

Another set of discussions going on in the Congress and in the Administration are can we bring forward new financing mechanisms that allows one to aggregate investments which tend to be smaller and give them a certain liquidity in the market? For example, real estate investment trusts, a discussion going on there, should those be brought in in terms of their scope, because right now they are limited in how they are applied. There's combined heat and power activities.

Senator SHAHEEN. Right.

Secretary MONIZ. So there is a whole set of these, and I think we would be delighted to sit down and try to go through those and brainstorm and see what we can add to it.

We have, I might say, added in the last 9 months two places in our organization specifically focused on State interactions. One is in our intergovernmental but with a much more active outreach, and energy efficiency is clearly a major part of that; and second, in our Energy Policy and Systems Analysis Office, we have a division, if you like, on state outreach. The focus this year is on energy infrastructure. It enables efficiency. In fact, in April I think we will be going to New England for some meetings on that.

So I think this issue is outreach and I think a strong State and regional focus that is critical for both manufacturing and efficiency.

Senator SHAHEEN. Well, good. I will take you up on your offer to come to New Hampshire. We'd love to have you.

Secretary MONIZ. Okay.

Senator SHAHEEN. Thanks very much.

Secretary MONIZ. Thank you.

Senator SHAHEEN. My time is up. Thank you, Madam Chairman.

Senator FEINSTEIN. Thank you, Senator.

THE ALCATOR C-MOD

I have a couple of questions that I would like to ask.

This Alcator C-Mod, Mr. Poneman, this will be for you. In fiscal year 2013 and 2014, you proposed shutting down the Alcator C-Mod and requested no funding for this fusion reactor at MIT. You assured this subcommittee that shutting down the reactor would have no impact on U.S. efforts to support ITER or the ability to attract future scientists to this field of science.

I am now questioning ITER, and whether we continue with that remains to be seen. But as I understand it, your fiscal year 2015 budget asks for $18 million to conduct research at this facility. The $18 million is only for 5 weeks of operation and supports 12 graduate students. This would be $1.5 million per graduate student. Why did you reverse your decision on shutting down the facility?

Mr. PONEMAN. Chairman Feinstein, we have, as you've heard from the Secretary, in all areas made a number of tough decisions. We decided that the right thing to do in the case of Alcator C-Mod was to transition out, to find appropriate placements for these indi-

viduals, and therefore initially we had not proposed further funding for it. But the Congress did appropriate the funds, and in order to accommodate a smooth transition we have provided for, as you've indicated, 2 years of operations at 5 weeks per year. That will allow the students who have been working at those facilities to finish their research at that facility, and then we are working on transition plans so that they will find other places to pursue their interest in fusion.

We specifically asked if there was any adverse effect in terms of other things that we are doing elsewhere, either in the domestic program or in support of ITER, and we were assured that that was not the case.

Senator FEINSTEIN. Is it true it's $18 million for 5 weeks of operation?

Mr. PONEMAN. We are talking about operating that facility for 5 weeks in the year. That's true. But, of course, the students prepare for the full academic year to do the planning for their activities there. Some of the investment goes for actually operating the facility, and some of the funds go for the research that is in support of the facility.

For fiscal year 2015, the request for the $18 million breaks down $11.855 for the facility operations and $6.145 for the research.

ADDITIONAL COMMITTEE QUESTIONS

Senator FEINSTEIN. My second question—and I'm just told there's 4 minutes left on the second vote, so I probably won't be able to ask it, and you're going to be happy that I'm not able to ask it—is on small modular reactors, and particularly I'd like to know what BNW decided today at their meeting, whether they intend to continue or not continue. Can you just quickly answer that?

Secretary MONIZ. Actually, I have not received any information from their meeting today. They were meeting this afternoon, I believe.

Senator FEINSTEIN. Okay.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED TO HON. ERNIE MONIZ, PH.D.

QUESTIONS SUBMITTED BY SENATOR PATTY MURRAY

ENVIRONMENTAL MANAGEMENT

Question. As you know, the Department of Energy (DOE) is legally obligated to complete the cleanup work of both the Richland Operations Office (RL) and the Office of River Protection (ORP) at the Hanford Site in Washington State within timelines agreed to under the Tri Party Agreement and Consent Decree agreement. I have been clear in my conversations with you that I expect DOE to meet these legal obligations.

Secretary Moniz, while I appreciate your efforts to work with the State of Washington on the Consent Decree milestones, I remain deeply concerned with the cuts proposed in the fiscal year 2015 budget request for RL. Furthermore, it is disappointing that you could not confirm or deny whether DOE will meet its legal obligations under the Tri Party Agreement despite a $98 million cut to the RL budget.

The Washington State Department of Ecology and others have told me that there are at least four near-term Tri Party Agreement milestones relating to groundwater treatment, the 200 West Pump and Treat facility, and the Waste Encapsulation Storage Facility that will be placed at risk due to the budget request. In addition,

I have been told that milestones in the out-years could be shifted to the right due to the fiscal year 2015 budget request.

Mr. Secretary, will DOE meet its legal obligations under the Tri Party Agreement within the fiscal year 2015 budget request for RL. If DOE believes no milestones will be missed in the 2014–2015 timeframe due to the fiscal year 2015 budget request, please specify what impacts the proposed cuts will have on milestones in 2016 and beyond.

I also ask that you explain your plans to ensure that RL receives the funding needed in future budgets to meet its legal obligations to complete cleanup along the Columbia River and tackle the remaining cleanup on the Central Plateau. In building these future budgets, I remind you that the Richland Operations Office and Office of River Protection each have their own mission, are separate and distinct sites, and have independent budgets. It will never be acceptable to me or the Tri-Cities community to rob RL to pay for ORP.

Answer. The Richland Operations Office (RL) is implementing the 2015 Vision for cleanup of the Hanford site, and RL will make significant cleanup progress with the President's fiscal year 2015 budget request of $914 million. Assuming Congress appropriates the President's request, key progress will include continued removal of radioactive equipment from the Plutonium Finishing Plant (PFP) in preparation for demolition to slab-on-grade, the start of construction of a facility and purchase of equipment to remove radioactive sludge from the K Reactor basin, continued safe operation of radioactive and hazardous solid and liquid waste facilities, removal of hazardous and radioactive contamination from 1.8 billion gallons of groundwater, continued removal of contaminated soil from along the River Corridor, and progress toward the initiation of demolition of the highly contaminated 324 Building.

While significant cleanup progress has been achieved and will continue to be made in fiscal year 2015, several challenges have impacted our progress on certain important projects. These challenges include the Balanced Budget and Emergency Deficit Control Act, which enacted sequestration, reduced funding at RL by $78 million in fiscal year 2013, and the fiscal year 2014 lapse in appropriations and partial-year Continuing Resolution delayed work. The culmination of these events is anticipated to delay some fiscal year 2015 milestones that cannot be met even with additional funds.

To the extent milestones are anticipated to be delayed, DOE will follow the provisions of the Tri-Party Agreement for working with regulators regarding milestone adjustments, as necessary.

Question. Secretary Moniz, as we have discussed several times, I have been asking the Department for a comprehensive plan that will address how to get the Waste Treatment Plant (WTP) back on track and moving toward completion for several years. The WTP has been under construction for over a decade now and yet we still do not have a real path forward and significant technical issues remain unresolved. While I appreciate the attention that you personally have given to Hanford and the WTP, I continue to wait to hear from you as to what the Department believes is the best path forward for WTP and will lead to our shared goal of treating waste.

Is the "Hanford Tank Waste Retrieval, Treatment, and Disposition Framework" which you shared with the State of Washington in September 2013 the comprehensive plan that I have been asking for? Or does DOE intent to produce this path forward through the Consent Decree process which the Department and State of Washington just began on March 31, 2014?

Answer. The Department's March 31, 2014, proposal to amend the Consent Decree is a prudent and reasonable approach to immobilize waste in a glass form as soon as practicable while working to resolve the technical issues. The Department is working with the State in the hope of reaching an agreement on a path forward for the construction and initial operation of the WTP. Until such time as the Consent Decree is amended by the Court, there will continue to be some amount of uncertainty. The Administration's budget request for fiscal year 2015 provides the resources needed to move forward with continuing technical issue resolution, continuing construction on the parts of the Waste Treatment and Immobilization Plant not impacted by the unresolved technical issues, and advance the capability to remove cesium and solids from liquid tank waste so it may be directly fed to the Low Activity Waste Facility for vitrification.

Question. In the past month there has been a series of instances at Hanford where workers in or near the tank farms experienced chemical vapor related symptoms. While all of the workers were examined and have been cleared to return to work, this high number of cases is concerning. It is my understanding from discussions with the contractor and ORP that several short- and long-term measures are being taken to ensure the health and safety of workers.

Mr. Secretary, is the Department satisfied with these proposed measures? While we can never completely eliminate chemical vapors in the tank farms, does DOE believe the contractor is taking all necessary measures to reduce exposure and protect the workforce? Is there additional training that could be conducted at the HAMMER Federal Training Center to better educate and prepare the workforce on the issue of chemical vapors?

Answer. Worker and public safety is the most important part of our work. Doing work safely is paramount to the tank waste retrieval mission. In response to recent events in which Hanford tank farm workers reported symptoms of chemical vapor exposure, Washington River Protection Solutions has taken a number of protective actions. Workers in C-tank farm, where retrievals are taking place are required to wear respirators. Workers in the A, AX, AY, and AN tank farms, where chemical vapors recently have been experienced, are also required to wear respirators. In addition, respirators are available upon request to other tank farm workers. WRPS is also working closely with the Hanford site medical provider to review and communicate its policies and practices for taking care of workers exposed to chemical vapors. A Chemical Vapors Solutions Team, a joint WRPS management-employee team, is evaluating a number of improvements to vapor hazard identification, vapors control and training. In addition, the Department has engaged the Savannah River National Laboratory to conduct an independent technical review of this issue with a focus on comprehensive, engineered solutions for the issue. The Hanford Atomic Metal Trades Council (HAMTC) has assigned a safety representative as a member of the independent review team.

Question. As the Department of Energy continues to make progress at Environmental Management cleanup sites across the country, communities adjacent to these sites have been working with DOE to transfer land back to the community for economic development, historic preservation, tourism, and recreation. Such land transfers are not only a good way for the Department to demonstrate the progress made at cleanup sites, but also serve as recognition of the sacrifices made by these communities to support the Unites States in years past. I have supported and continue to support efforts by the Department to transfer land back to local communities.

Unfortunately, this process has proven to be extremely slow, inconsistent from one site to the next, and there is a clear lack of direction from the Department itself. At Hanford for example, RL has been working on a 1,600 acre land transfer since 2011. Despite a completed Comprehensive Land Use Plan, the requirements of which this land transfer meets, RL has at least another year of work before this land transfer may be approved.

Secretary Moniz, what can the Department do to better facilitate these land transfers? Would a Department-wide process, which is consistent from site to site, ensure that such transfers occur in a more timely fashion? Furthermore, what specifically are you doing to ensure the schedule laid out by RL for the Hanford land transfer remains on track and continues to progress as planned?

Answer. All land transfers are unique and must comply with a complex set of statutory and regulatory requirements. DOE must comply with the detailed requirements of a number of Federal laws, including, for example, the National Environmental Policy Act, National Historic Preservation Act and National Endangered Species Act, all of which require extensive study and documentation. There are a myriad of "preparatory" activities ranging from field work (some of it driven by seasonal conditions) such as sampling and analysis, to coordination with a range of other State and Federal agencies, stakeholders, and tribal governments that take time and have to occur before a transfer for economic development, historic preservation, tourism, or recreation can be finalized.

The transfer of DOE unneeded property is governed by and consistently implemented under 10 CFR 770. The Cross-Cut Guidance on Environmental Requirements for DOE Real Property Transfers (Update) of 2005 (DOE–EH–413/9712; October 1997; Revised March 2005), provides guidance as the title indicates.

I have asked the Deputy Under Secretary for Management and Performance to work with the Office of Environmental Management to ensure that the process we must follow before we can transfer the 1,600 acres at Hanford stays on schedule, and more broadly that all future excess property transfers are managed as projects with established schedules, scope, metrics and milestones.

Question. As you know, the Department of Energy works with the Small Business Administration (SBA) to establish small business prime contracting goals for each fiscal year. The fiscal year 2014 Consolidated Appropriations Act made changes to allow DOE to count first tier subcontracts awarded by Management and Operating contractors to small businesses toward this annual small business contracting goal. How will the Department interpret and implement Section 318? Have DOE and

SBA set a small business prime contracting goal for fiscal year 2014? If so, was Section 318 taken into account? If not, will this recent change assist the Department in meeting the fiscal year 2014 goal?

While I supported this change in practice, I am concerned it will not cover all first tier subcontracts awarded by prime contractors working on nuclear waste cleanup. In my home State of Washington, the prime contractors at the Hanford site are committed to working with small businesses in the local community as well as across the Nation. All of these prime contractors have small business subcontracting goals ranging from 49 to 65 percent and all of the prime contractors are meeting these goals. Unfortunately, these first tier subcontracts are not counted by DOE or SBA towards the prime contracting goals.

As DOE embarks on determining the fiscal year 2015 small business prime contracting goals with the SBA, I urge you to be cautious in scope and requirements given that Section 318 could result in unintended consequences such as potential delays to nuclear waste cleanup or job losses at small businesses currently operating as subcontractors on non-Management and Operating contractors. I ask that you commit to fully analyzing the impacts of future goals on existing small business subcontractors and work to do no harm to these small business subcontractors.

Answer. As you may be aware, the President's fiscal year 2015 Budget requests to delete the provision that considers contract dollars awarded to small business subcontractors under the DOE's management and operating (M&O) contracts towards the Department's prime small business contracting goals. Currently, the DOE Office of Small Disadvantaged Business Utilization is working with the SBA on interpretation and implementation of the provision. We note that first-tier subcontracts, like the Hanford (non-M&O) first-tier subcontracts, will continue to count towards the DOE small business subcontracting goal.

At the present time, we do not believe that Section 318 will have a negative effect upon prime or subcontracting achievements on our non-M&O contracts across the Office of Environmental Management complex. Subcontractors that have contracts with DOE's non-M&O prime contractors will still be counted toward DOE's small business subcontracting goals.

Question. With the ongoing challenges at WTP, it has become clear that large portions of the Hanford site will remain in operation longer than the Department originally expected. As a result the Department will need to maintain critical infrastructure longer in order to support continued cleanup operations. It is my understanding that the Richland Operations Office will begin planning this year for infrastructure upgrades to systems like water, electrical, power, sewer, and roads in the Central Plateau to support start up and operation of the WTP and continued operation of the Environmental Restoration Disposal Facility and 200 West Pump and Treat Facility.

Does the Department plan to support funding these necessary infrastructure improvements in the fiscal year 2016 budget and beyond? Please elaborate on how the Department will support RL's efforts despite constrained budgets.

Answer. The Richland Operations Office (RL) is responsible for providing site-wide infrastructure support to both its own cleanup activities and operations of the Office of River Protection (ORP). The Department recognizes the need for and has already begun the planning for upgrades and maintenance of the infrastructure of systems, including water, electric, power, sewer, and roads, in order to support cleanup efforts on the Central Plateau, as well as startup operations of the Waste Treatment Plant.

Question. The Department of Energy is facing a number of nuclear waste cleanup challenges, and we must ensure that we have the technical understanding, scientific approaches, and tools we need to sufficiently address them. I was encouraged to see DOE's continued commitment to addressing these challenges through the Technology Development and Deployment (TDD) program. However, I am remain concerned that DOE is not using all the tools at its disposal in addressing these challenges, mainly the national laboratories in their role as federally funded research and development centers. National laboratories like the Pacific Northwest National Laboratory, Oak Ridge National Laboratory, and the Savannah River National Laboratory have unique expertise and the technical understanding to address the technology needs at cleanup sites like Hanford, Oak Ridge and Savannah River.

Please elaborate on how the Department's budget request will continue these efforts, enable the national laboratories to participate in devising technically-grounded strategies for the EM mission, and ensure greater alignment of the TDD program priorities with key EM challenges.

Answer. We strongly agree that Technology Development and Deployment (TDD) activities are crucial to the Department of Energy's (DOE) mission of effectively remediating and closing contaminated sites on cost and schedule. Investment in our

TDD activities also has the potential to generate significant life-cycle cost savings in this mission. During fiscal year 2015, the Department will continue to actively engage and leverage the expertise of its own national laboratories as it executes its cleanup mission. Moreover, DOE will continue to take steps to bolster its science and engineering prowess by establishing formal collaborations with other Federal Government laboratories and academic institutions. Finally, the Department will continue to explore opportunities to transfer technology from private industrial entities that have not historically conducted work sponsored or funded by DOE's cleanup program.

QUESTIONS SUBMITTED BY SENATOR TIM JOHNSON

Question. In the budget justification for the Western Area Power Administration (Western), the Program Direction section shows an increase of 16 FTE's at WAPA's headquarters. Can you provide further explanation for the requested staff increase?

Answer. The Western Area Power Administration (Western) budget justification does not break out Program Direction by location. However, of the total FTEs requested in fiscal year 2015 across all programs, an increase of 17 FTEs is attributable to Western's headquarters. While these positions are staffed out of Western's headquarters office, they serve the regional needs across our 15 State territory. The specific additional FTEs requested are identified below.

Two additional FTEs for Enterprise Risk Management (ERM): In fiscal year 2013, the Risk Management Office/Program was created to develop an Enterprise-wide Risk Program adopting data-driven common industry practices in planning, managing, and mitigating risks Western-wide. This program contributes to the assurance of continued safe and reliable power delivery to our customers by addressing emerging risks that present vulnerabilities in the utility industry. The ERM staff works across all of Western's activities.

Four additional FTEs for IT specialists for cyber security: Threats to control systems and enterprise-wide networks are at an all-time high, nationwide. To protect the grid we are responsibly intensifying resilience to cyber security attacks by establishing a Network and Security Operations Center (NSOC) to increase protection by logging, scanning, alerting, sensor monitoring, and by implementing North American Electric Reliability Commission (NERC) Critical Infrastructure Protection (CIP–5). We are working closely with the Federal Energy Regulatory Commission (FERC), the Department of Energy (DOE) Office of Electricity and Energy Reliability (OE), and the Department of Homeland Security (DHS) to implement practices that reduce risk and vulnerabilities across our large geographical footprint impacting millions of residential communities and commercial industries. These cyber security specialists support the regions as well as Western's data center which is based in Folsom, California.

Two additional FTEs for General Engineers for Asset Management (AM): Western has initiated a formalized asset management program to capture data on our portfolio of capital assets more uniformly and systematically. Capital asset-related workload is increasing to design, develop and implement strategies, plans and policies for proper investment valuation and portfolio management, design, construction, and monitoring asset health, condition, risks and costs. Asset management is a Western-wide activity.

Two additional FTEs for Attorneys: Workload in compliance, regulation and evaluation of market impacts is increasing due to various factors (including, but not limited to, FERC Order 1000, inter-regional planning and cost allocation; FERC Order 764, integration of Variable Energy Resources (VER); and Regional Transmission Organization (RTO)/Independent Systems Operator (ISO) opportunities) which require precision in assessing legal implications to ensure sound decisionmaking to protect customer and taxpayers' interests. While physically located at the Lakewood headquarters, all of this legal work is on behalf of the regions.

One additional FTE for a Supervisory Public Affairs Specialist: Significant dynamic change and related issues, within, and external to Western, drive the need for more communication and multi-faceted communication strategies. This position will ensure we are meeting the public need for timely information and effective communication with DOE, other Federal agencies, stakeholders, customers, Congress, State and local governments, and tribes.

Two additional FTEs for contract specialists: The positions are required to meet increased workload demands in procurement, address the Strategic Integrated Procurement Enterprise System (STRIPES) implementation, ensure compliance with changing procurement requirements, enable execution of strategic sourcing initia-

tives to promote cost savings and improve efficiencies in material and acquisition management.

Four additional FTEs for the Transmission Infrastructure Program (TIP): TIP is a full cost recovery program and these positions. (Financial Manager, Budget Analyst, Accountant and Project Management Support Technician) are necessary to meet the anticipated increase in the number of project proposals that seek to obtain funding through the use of Western's borrowing authority.

Question. Within Western, what are the Corporate Services Office's total costs for fiscal year 2013–2015? Please also break out overheads and direct charges, total dollars as well as overhead rates.

Answer. Total costs budgeted for CSO in fiscal year 2013 were $59.3 million. Of this, $44.4 million was an indirect charge and the remaining balance was a direct charge.

Total costs budgeted for CSO in fiscal year 2014 are $64.7 million. Of this, $44.8 million is an indirect charge and the remaining balance is a direct charge.

Total costs budgeted for CSO in fiscal year 2015 are $67.8 million. Of this, $50.1 million is an indirect charge and the remaining balance is a direct charge.

As a general rule, about 80 percent of the indirect costs are passed into overhead rates. The remaining indirect costs are directly burdened to construction or operations and maintenance project rates for the regions.

Question. Western's budget request shows $74,448,000 in alternative financing for Construction and Rehabilitation. What alternative financing tools are being used, and how much will be coming from what sources?

Answer. Western relies heavily on voluntary customer participation in alternative methods for capital financing to supplement the appropriations provided for the Construction and Rehabilitation program. The authority is provided in Public Law 66–389, "Sundry Civil Appropriations Act" (1922). Given customer advances for the Construction and Rehabilitation program are voluntary contributions, they are not mandatory; and generally, are not determined until the funds are required near the execution year. Therefore, it is extremely difficult to identify with certainty the sources or the distribution. Western discusses funding needs with customers and discloses the estimated need for capital resources and its reliance on customer advance funding in the budget request. The capital needs are requested from customer groups benefitting from the power system investments.

Question. In Western's "Program Direction Support Services and Other Related Expenses," the budget request for "Other Services" has grown from $15,086 in fiscal year 2013 to $24,016, an increase of over 35 percent in 3 years. What costs are included in "Other Services," and what amounts are requested for each category?

Answer. Western's increase of approximately $8.9 million in the fiscal year 2015 President's Budget Request as compared to fiscal year 2013 within its Construction, Rehabilitation, Operations and Maintenance (CROM) Account, Program Direction, "Other Related Expenses", specifically "Other Services" is primarily attributable to an increase in architectural and engineering services for design work estimated to be beyond available resources, which will require outsourcing. Nearly all of the increase in Western's fiscal year 2015 estimate for "Other Services" is due to the following design projects: the Central Valley Project (CVP) Easement Improvement Project, Keswick-Airport/Airport-Cottonwood Reconductoring Project, Cottonwood-Olinda Reconductoring Project, Blythe-Parker rebuild, Coolidge-Valley Farms rebuild, and the Henry-Sievers/Coolidge-Valley Farms rebuild. NERC/FERC requirements dictate that Western analyze and mitigate low, medium and high priority issues with our lines. The analysis piece of this effort is reflected in the fiscal year 2015 estimate for "Other Services" and ties into the architectural and engineering phased activity reflected in Western's 10-year capital construction plan. Over the last few years, Western has placed an increased emphasis on performing engineering studies for future potential/programmed projects prior to the actual start of the project.

Question. This year's budget request has significantly less detail in describing Western's needs. Why is that?

Answer. The amount of detail that Western includes is coordinated with the Department of Energy, which in recent years has aggressively worked to streamline costs by reducing paper, unnecessary detail and processing. To add value and reduce costs, Western extensively streamlined the budget request document while maintaining and improving the quality of the narratives.

QUESTIONS SUBMITTED BY SENATOR MARY L. LANDRIEU

LNG EXPORTS

Question. The shale boom has opened up the possibility of something previously considered impossible; exporting gas from the United States to our allies. It is vital, then, that we ensure that permitting and approval for these export facilities is not held up by unneeded bureaucracy. The Department of Energy has stepped up its approval process over the last several months, but it is still not where it needs to be. There are twenty four projects currently awaiting approval. Some of them have been waiting for over 800 days. I commend you on the recent approval of Jordan Cove in Oregon as well as the six other approved facilities: Cheniere (Louisiana), Freeport (Texas), Lake Charles Exports (Louisiana), Dominion Cove Point (Maryland), Freeport (Texas, expansion of earlier approval), Cameron LNG (Louisiana) and Jordan Cove (Oregon). Combined, these represent 9.27 bcf/day of export capacity.

What can be done to speed up this process to help open up a freer market for our allies across the globe and create more critical U.S. jobs?

Answer. As of April, 2014,[1] the Department is processing applications as expeditiously as possible. The Department has conditionally approved LNG export permits from proposed facilities equivalent to 9.27 billion cubic feet per day of natural gas (or 96 billion cubic meters a year) that can be exported to countries with which the United States does not have a free trade agreement that requires national treatment for trade in natural gas (non-FTA countries), such as European countries. In addition, the Department has granted authorizations to export LNG from proposed facilities to countries with which the United States has free trade agreements that require national treatment for trade in natural gas (FTA countries) equivalent to 37.96 billion cubic feet per day of natural gas. The FTA authorized volumes are from facilities that include the non-FTA authorized facility volumes, and therefore are not additive to the non-FTA volumes authorized.

These are significant volumes. To put it in perspective, the non-FTA authorized volume of 9.27 billion cubic feet per day of natural gas is essentially equal to the 2013 LNG exports from Qatar, the world's largest LNG exporter, more than the total amount of LNG that Europe currently imports, and equal to over half the natural gas Europe currently imports from Russia.

KEYSTONE XL PIPELINE

Question. It has been over 5 years since TransCanada first applied for a permit to build the Keystone XL Pipeline. This critical infrastructure project will carry an

[1] On May 29, 2014, the Department of Energy announced that in order to reflect changing market dynamics, the Department is proposing to review applications and make final public interest determinations only after completion of the review required by environmental laws and regulations that are included in the National Environmental Policy Act review (NEPA review), suspending its practice of issuing conditional commitments. The proposed changes to the manner in which LNG applications are ordered and processed will ensure our process is efficient by prioritizing resources on the more commercially advanced projects, while also providing the Department with more complete information when applications are considered and public interest determinations are made.

The Department's practice of issuing conditional authorizations to export LNG to non-FTA countries was designed to provide regulatory certainty before project sponsors and the Federal Energy Regulatory Commission (FERC) spend significant resources for the review of export facilities required by environmental laws and regulations that are included in the NEPA review. However, market participants have increasingly shown a willingness to dedicate the resources needed for their NEPA review prior to receiving conditional authorizations from the Department of Energy. In response to these and other developments, the Department intends to make final public interest determinations only after a project has completed the NEPA process, instead of issuing conditional authorizations. By removing the intermediate step of conditional decisions and setting the order of DOE decisionmaking based on readiness for final action, DOE will prioritize resources on the more commercially advanced projects.

The proposed procedural change will improve the quality of information on which DOE makes its public interest determinations. By considering for approval those projects that are more likely to actually be constructed, DOE will be able to base its decision on a more accurate evaluation of the project's impact on the public interest. DOE will also be better positioned to judge the cumulative market impacts of its authorizations in its public interest review. While it is not assured that all projects for which NEPA review is completed will be financed and constructed, projects that have completed the NEPA review are, generally speaking, more likely to proceed than those that have not.

In response to an evolving market, this proposed change will streamline the regulatory process for applicants, ensure that applications that have completed NEPA review will not be delayed by their position in the current order of precedence, and give the Department a more complete understanding of project impacts.

estimated 830,000 barrels of oil a day to U.S. refineries and would create over 40,000 jobs and lessen our dependence on foreign oil. I have been urging for approval of Keystone XL for over 3 years now. I understand that when the 90-day Federal agency comment period ends in the coming weeks, Secretary of State John Kerry will provide the national interest determination of the Keystone XL Pipeline. I recently led an effort with 10 of my Senate colleagues calling on the Administration to implement an explicit timeline to get the national interest determination no later than 15 days after the comment period ends and a final decision on Keystone by May 31.

Could you define the role of the Department of Energy in providing input to the State Department regarding the national interest determination of the Keystone XL pipeline?

Answer. The State Department is responsible, under Executive Order 13337, to determine if granting a permit for the proposed pipeline would serve the national interest. Consistent with the Executive Order, the national interest determination involves consideration of many factors, including energy security, health, environmental, cultural, economic, and foreign policy concerns. The Department of Energy is one of several Departments and Agencies that the State Department is required to seek input from in terms of the national interest. As such, the Department's input will primarily address the energy security and energy market implications of the proposed pipeline permit application.

Question. Given that input, do you intend to push for prompt approval of the pipeline?

Answer. The Department cannot answer this question at this time because the Department's input addressing the factors required under Executive Order 13337 are currently being reviewed.

U.S.-Israel Energy Cooperative Agreement—Binational Industrial Research and Development (BIRD) Energy Program

Question. The BIRD Foundation was established by the U.S. and Israeli governments in 1977. It was a priority of Presidents Gerald Ford and Jimmy Carter, and received its first appropriations in H.R. 4877, the Supplemental Appropriations Bill of 1977. It is a jointly run venture between the U.S. and Israeli governments, and in my view, is incredibly efficient. For every $1 of Government funding—half of which come from the U.S. Government, half from the Israeli government—, the applicants have to match with at least $1 in private financing. In 2007, we expanded the program and created a BIRD Energy program, focused on funding innovative renewable energy and energy efficiency ventures, and the Department of Energy runs it on the U.S. side. The funding began in 2009, and we've gotten a great bang for our buck. For every $1 we put in, the joint venture receives a total of approximately we leverage it $4.50 times:

> We have financed innovative companies from Phoenix, Arizona, to Madison, Wisconsin, to Scranton, Pennsylvania working on solar, bio fuels, and energy efficiency. As you know, I've introduced legislation that has passed the Energy Committee, as well as the House, that expands this program to include innovative fossil fuel projects. We usually appropriate $2 million a year, but I am asking for $5 million.

Given the success of the BIRD Energy program, and the expansion we are supporting, do you think that the program would be able to utilize the additional bandwidth of $5 million that I'd like to see?

Answer. Based on previous funding cycles for BIRD Energy, it is unclear whether there would be sufficient high-quality applications to support this increase in funding. More importantly, this increase in funding would require matching from the Israeli government, on which DOE cannot comment.

Question. How else is the Department of Energy supporting Israel's development of their newfound natural resources?

Answer. The Department of Energy plans to continue to develop its already strong relationship with Israel on strategic energy matters. DOE intends to pursue opportunities to enhance its cooperation with Israel, and we look forward to continuing to work with the Government of Israel, including the Israeli Ministry of National Infrastructures, Energy, and Water Resources (MIEW).

The U.S. and Israeli Governments participated in the annual U.S.-Israel Energy Meeting in Israel on March 25, 2014. The Energy Meeting covered topics including natural gas regulation, clean transportation fuels, the energy/water nexus, energy storage, and critical energy infrastructure protection, and the Energy Meeting included energy sector site visits around Israel. The U.S. delegation included participants from DOE, DOE's National Laboratories, the Department of State, and the

Department of Interior, and was led by DOE. The Israeli delegation included participants from multiple Government of Israel agencies, and was led by MIEW.

WIND ENERGY

Question. Wind energy holds enormous promise as another source of energy for our country, and to create a great number of new jobs. I understand that Maine has had great success in their efforts, but there are legitimate concerns that other countries will overtake the United States' competitive advantage. One of the critical pieces of information to clarify for policy makes is price. I understand that in most cases, contracts between an operator and a utility are private, bilateral agreements that are not made public. Given the government's presence in the wind energy space, and the continued strong interest, I think it is critical that we have an operating assumption of price, and how that compares with more traditional sources of energy.

Measured in cost per kilowatt hour, how does wind compare to consumer costs for energy derived from other sources?

Answer. While energy contracts are often not made public, the Wind Program has collected data on 302 wind power purchase agreements (PPAs) representing 24,626 projects, and reports on aggregated trends in the annual Wind Program-funded Wind Technologies Market Report. Wind PPA prices generally have been falling since 2009 (from $70/MWh) and now rival previous lows set a decade ago, with the average levelized long-term price from wind PPAs signed in 2011/2012 falling to around $40/MWh. PPA prices are generally lowest in the interior region, where they are competitive with wholesale electricity prices, and highest in the west.[2]

The cost of energy from wind power, in areas with good wind resources, has decreased from over 55 cents per kilowatt-hour (kWh) in 1980 (current dollars) to under 6 cents/kWh today in the interior region of the United States. For comparison, the Energy Information Administration reports that the average retail price of electricity for all sectors is approximately 10 cents/kWh.[3]

QUESTIONS SUBMITTED BY SENATOR RICHARD J. DURBIN

HIGH ENERGY PHYSICS

Question. As you appropriately put it in your testimony, the Office of Science:

> "Provides the national research community with unique research opportunities at major facilities for nuclear and particle physics, energy science, materials research and discovery, large-scale computation, and other disciplines."

In many ways, the fiscal year 2015 DOE budget request sustains its investment in the basic research by providing the Office of Science $5.1 billion. Unfortunately, that support is not equally distributed. The budget proposes to cut $52 million from the High Energy Physics program—Fermi National Accelerator Lab would disproportionately absorb $41 million of this cut.

While the Department is waiting for the Particle Physics Project Prioritization Panel (P5) to issue its report in May, detailing a new strategic plan, the U.S. should at least sustain the current budget, which is consistent with DOE's previous guidance to P5 that HEP would receive 3 years of flat funding.

With that in mind, what are the promising directions you see for U.S. physics community under a flat budget scenario?

Answer. This is a very exciting time for high-energy physics, with several recent major discoveries that open up new areas of investigation, including the discovery of the Higgs boson at CERN, the measured large mixing of neutrinos enabling qualitatively new investigations of fundamental questions, and rapid advances in the ongoing searches for dark matter and dark energy. While there are more opportunities to pursue than fit into a flat budget, we expect P5 to make recommendations for a set of compelling science projects that can be executed in such a scenario.

Question. The particle physics community is a global community, and the U.S. is building significant momentum with Europe for the Long Baseline Neutrino Experiment (LBNE) with strong support from Congress for preliminary work on the project.

What is DOE prepared to do to ensure a robust future for U.S. leadership in high energy physics and the Long Baseline Neutrino Experiment?

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[2] http://energy.gov/sites/prod/files/2013/12/f5/2012__wind__technologies__market__report.pdf.
[3] http://www.eia.gov/electricity/monthly/current__year/january2014.pdf.

Answer. The U.S. is currently the world leader in several research areas in the Intensity and Cosmic Frontiers and is making new investments to continue this leadership. The U.S. also plays key roles and has leadership positions in offshore scientific opportunities that maintain our high visibility and impact in the global HEP program.

Several nations in Europe and Asia as well as CERN have expressed interested in joining the world-leading neutrino program at Fermilab, including the Long Baseline Neutrino Experiment (LBNE), potentially contributing to both the scientific effort and the detectors and the neutrino beams. P5 heard from these potential partners while collecting input and will carefully consider this as they formulate their recommendations The Department is committed to supporting a robust program in particle physics including a domestic program that builds on the infrastructure and expertise at Fermilab to provide U.S. leadership in the global particle physics effort.

ENVIRONMENTAL MANAGEMENT

Question. While the Department has made significant strides to reduce the footprint of legacy nuclear waste sites across the country, the cleanup of smaller sites with non-defense waste has been largely neglected—forcing these sites to use their own funds to clean up the waste.

In the last decade, Argonne National Laboratory used its own funds, which could have otherwise been dedicated to scientific research, to transport waste to the Waste Isolation Pilot Plant (WIPP) in New Mexico. Before WIPP's temporary closure in June, Argonne accounted for almost half of all the transuranic waste transported to WIPP.

Given that reasonable increases in funding to clean small, non-defense sites could have a substantial effect on DOE's waste footprint, what can the Department do to ensure sufficient funding through the Environmental Management program is given for these activities?

Answer. As the Environmental Management program enters its 25th year, much progress has been made to clean up and close both small and large legacy radioactive sites. EM has completed to date 91 sites and has made significant progress at the remaining sites. The Department's Office of Science nuclear research and development work at Argonne National Laboratory resulted in contamination of some research facilities and the generation of radioactive wastes. As you may be aware, the Office of Environmental Management (EM) used Recovery Act funds to achieve a certain amount of cleanup at Argonne, creating the remote-handled transuranic waste stream that you mention. Once the Recovery Act funds were spent, the Office of Science continued to fund the ongoing cleanup of the Alpha Gamma Hot Cell Facility, to the advantage of both the EM and Office of Science efforts. The legacy work scope of EM at the Argonne National Laboratory has been completed. The cleanup of newly generated waste is the responsibility of the Office of Science.

OFFICE OF FOSSIL ENERGY

Question. FutureGen 2.0, a project to develop a near-zero emission coal-fired power plant while reducing greenhouse gas emissions and generating tremendous economic opportunity at the same time, is scheduled to begin scheduled to begin construction this year.

How does FutureGen 2.0 fit into the larger clean energy strategy at DOE and the President's Climate Action Plan?

Answer. Carbon Capture and Storage (CCS) is an integral part of the President's Climate Action Plan to safely and cost effectively reduce emissions of carbon dioxide, a greenhouse gas. The Office of Fossil Energy is working to develop a suite of technologies that can affordably capture carbon dioxide and then safely and permanently store or reuse it. The Office of Fossil Energy has a portfolio of commercial scale CCS demonstration projects, including FutureGen 2.0, and is intended to demonstrate the technical and commercial viability of these technologies.

QUESTIONS SUBMITTED BY SENATOR LAMAR ALEXANDER

CEILING FANS

Question. Has the Department of Energy studied the relationship between fan use and air conditioning use?

Answer. In response to comments on the framework document regarding the potential interaction between ceiling fan and air conditioner usage, DOE published a Request for Information (RFI) in the Federal Register on October 22, 2013, asking for additional data and information on the subject (78 FR 62494). DOE reviewed

third-party studies on this topic as well as the 50 comments and data that were submitted to DOE in response to the RFI. DOE plans to utilize the knowledge and information gained from the RFI and from independent research to further study the relationship between fan use and air conditioning use during the course of the ceiling fan rulemaking.

Question. Does the Department have statistics on the amount of energy consumption fans save as an alternative to air conditioning?

Answer. DOE does not have statistics on the amount of energy consumption fans save as an alternative to air conditioning. As part of the RFI, DOE specifically asked for information and data on consumer behavior with regards to ceiling fan usage and purchasing decisions. DOE received varying responses to its request in the RFI with some of the data indicating that consumers do not adjust their thermostat when they use a ceiling fan and there is no clear indication that consumers substitute purchases of ceiling fans for purchases of air conditioners. In addition, DOE recently released energy efficiency and cost data on ceiling fans, which generally shows manufacturers can achieve a 35 to 45 percent increase in airflow efficiency with a less than $8 increase in the manufacturing cost of the fan. At this incremental increase in manufacturing cost, DOE does not have data that indicates that consumer purchasing behavior would be impacted.

Question. Will the Department go forward with the rulemaking even if it lacks empirical data regarding the relationship between fans and A/C?

Answer. As part of this rulemaking, DOE is interested in reviewing any and all information pertaining to ceiling fan energy consumption, including information on consumer usage patterns. Among the data that DOE has reviewed to date are the following:

—2009 RECS data to indicate usage patterns and ownership rates of ceiling fan and air conditioning equipment.

—2003 and 2009 California Residential Appliance Saturation study (RASS) and RECS data to identify potential substitution effect for ceiling fan and air conditioner ownership.

—A Florida Solar Energy Center (FSEC) study on 400 homes and the comfort levels provided by ceiling fans.[4]

—An AcuPOLL survey on consumer behavior.[5]

—An SDG&E study with information on ceiling fan and air conditioner use.[6]

—2002 Sacramento Municipal Utility District (SMUD) study on 25 households with ceiling fans.[7]

—Lawrence Berkeley National Laboratory's report "Ceiling Fan and Ceiling Fan Light Kit Use in the U.S."[8]

DOE will take into account all of the information during the course of the rulemaking.

Question. Do you agree that the Department should have sufficient empirical data regarding these issues before moving forward with a rulemaking that could result in decreased energy savings while simultaneously reducing consumer choice?

Answer. DOE plans to consider the impact on consumer choice as part of the rulemaking. Preservation of consumer choice is addressed by one of the factors that DOE must weigh when considering energy conservation standards for ceiling fans as required by statute.

DEPARTMENT OF ENERGY CONSTRUCTION

Question. You commissioned a "Red Team" review of the Uranium Processing Facility led by Thom Mason to look at how to fix the project. Are you also going to take the lessons learned from the 'Red Team' review and apply that to these other projects whose budgets are constantly growing?

Answer. DOE/NNSA uses lessons learned from every review to improve project performance across our portfolio. We perform these reviews annually and at critical decision points to ensure all projects are properly progressing. The reviews are

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[4] James, P., J. Sonne, R. Vieira, D. Parker, and M. Anello. "Are Energy Savings Due to Ceiling Fans Just Hot Air?" In Proceedings of the ACEEE Summer Study on Energy Efficiency in Buildings. 8:89–93. American Council for an Energy-Efficient Economy. 1996. Washington D.C.

[5] ALA comment, No. 59 at p.15.

[6] SDG&E. Statewide Investor Owned Utility Ceiling Fan Study. Prepared by RLW Analytics. 2002. (Last Accessed April 10, 2014).

[7] The SMUD study was conducted as part of a larger California-wide study on ceiling fan operational characteristics, and can be found in Chapter 4 of that study. See RLW Analytics, Inc., prepared for San Diego Gas & Electric Company, Statewide Investor Owned Utility Ceiling Fan Study, Chapter 4 (2002) (SMUD Study).

[8] Kantner, C.L.S., S.J. Young, S.M. Donovan, and K. Garbesi. Ceiling Fan and Ceiling Fan Light Kit Use in the U.S.—Results of a Survey on Amazon Mechanical Turk. July 2013.

staffed with subject matter experts from across the complex. The reviews focus on the following areas: Technical; Schedule, Cost, and Risk; Management and Acquisition, Environmental, Safety, Health & Quality Assurance, and Start-up and Commissioning. Each review produces recommendations that the project responds to in a time-phased corrective action plan.

Question. In the Office of Science they do regular reviews of construction projects. Shouldn't we be doing that with all DOE construction projects?

Answer. An important improvement driven by the Department's Root Cause Analysis and Corrective Action Plan, and codified in DOE Order 413.3B, Program and Project Management for the Acquisition of Capital Assets (November 29, 2010), and overseen by the Department's Office of Acquisition and Project Management is the implementation of Project Peer Reviews, a best practice successfully employed by the Office of Science, across the Department. Project Peer Reviews provide a means to monitor project development and execution and foster sharing of design, procurement and construction lessons learned by leveraging Federal and contractor staff from across the complex that have requisite knowledge, skills and experience for particular projects, disciplines, and phases. Project risks and how they are effectively being managed are central to these reviews. Results of these reviews are provided to the Headquarters' Acquisition Executive (which is the Deputy Secretary for large projects costing $750 million or more, or those specifically determined to require additional attention) soon after completion of the review.

INCUBATOR PROGRAM

Question. Could you explain how you could ensure that, if we approve it, the Incubator Program proposed for EERE would not be duplicative with ARPA–E?

Answer. The DOE Office of Energy Efficiency and Renewable Energy (EERE) is focused on achieving aggressive and well-defined mid-to-long term clean energy goals for the United States of America. EERE's mission and program goals, including its proposed Incubator Programs, are complimentary to, and not duplicative of, ARPA–E's activities.

EERE works with industry, academia, National Laboratories, and other partners to craft Technology Office-specific Multi-Year Program Plans ("roadmaps")—evaluating pathways for future market potential and public benefits of clean energy technologies by incorporating in-house expertise, market awareness, and knowledge of private investment.[9] EERE focuses the majority of its resources on a limited number of "highest probability of success" pathways and approaches identified within each roadmap, to ensure that the program initiatives are supported at a critical mass (both in terms of dollars and time) for maximum impact. While this roadmap-based approach is one of EERE's greatest strengths, it creates inherent challenges in recognizing and rapidly onboarding new or unanticipated high-potential pathways which may ultimately be superior to approaches envisioned within the existing roadmap.

While EERE strategically plans and evaluates its support of RD&D activities according to these technology roadmaps, we also recognize how dynamic innovators in the clean energy economy constantly integrate new ideas and discoveries to create competitive advantages. The fiscal year 2015 EERE Budget Request is seeking support from Congress to include a small fraction of its annual funding for "Incubator" programs within each of its technology offices. The Incubator programs are intended to allow EERE to develop, assess, and screen new potentially impactful "off-roadmap" technologies, which may be "on-ramped" into future roadmaps. DOE's pilot SunShot Incubator Program began in 2007 and continues to foster innovative solutions across the Solar Energy Technologies Office portfolio.

In fiscal year 2014, EERE assembled a cross-cutting panel of technology managers from seven different EERE Technology Offices to explore what Incubator programs could look like for each office, and as a result, issued several pilot-Incubator Funding Opportunities Announcements (FOAs). EERE has and will continue to engage ARPA–E in order to clarify the distinctions between the EERE Incubator and ARPA–E awards.

Each EERE Technology Office Incubator FOA is presently intended to run annually and be open to all applicants within a given technology area. While ARPA–E also runs several competitive solicitation processes, ARPA–E seeks potentially transformational and disruptive technologies that would require substantial revisions of technology roadmaps beyond that of EERE or industry. This is a significantly different from seeking ideas that may be added to an established roadmap.

[9] For an example of one of these roadmaps, EERE-Bioenergy Technologies Office's May, 2013 roadmap is available at: https://www1.eere.energy.gov/bioenergy/pdfs/mypp__may__2013.pdf.

Question. I also want to make sure this doesn't end up looking like a slush fund that your program managers can spend on their projects without involving the Appropriations Committee, like kite-based wind power that you know we would never approve. Could you explain what oversight role this Committee would have in the projects this program would fund?

Answer. Incubator funding may not be used by an EERE Technology Office Director at his or her discretion, and therefore it is in no way a slush fund. To spend funding appropriated for an Incubator award, the Office Director must issue a Funding Opportunity Announcement (FOA) soliciting proposals. Each Technology Office FOA is presently intended to run annually and eligible topic areas and projects would be limited to Congressionally-authorized EERE program office activities.

Under EERE's procedures, all proposals submitted will be evaluated and scored by outside independent technology and industry experts in the field to identify the most promising emerging new approaches using key criteria such as technical merit, impact on national energy goals, project research and commercialization plan, and project team capabilities and resources.[10]

This vigorous review process involves written applications culminating in a Federal Consensus Board recommendation to the Selection Official. The Selection Official would select projects based on the recommendations of the Federal Consensus Board, after considering policy factors. If the Selection Official deviated from the recommendations of the Federal Consensus Board, the Selection Official must justify this deviation in writing. Finally, all selections would be communicated to the Chairmen and Ranking Members of each Appropriations Committee prior to obligation.

OE EMERGENCY OPERATIONS

Question. Given the small amount of time that these Federal Regional Energy Advisors would spend under FEMA emergencies, what would they do the rest of the year, especially in the three FEMA regions where they haven't been needed since 2012?

Answer. The Regional Energy Advisors (REA) will be composed of highly technical staff who will be focusing, year-round on three key areas: (1) risk management, (2) enhancing resilience & reliability, and (3) cutting edge solutions. The work they would be doing in these areas would be to help States and regions tackle the unique challenges they face that require tailored solutions to address resilience and reliability issues. The ultimate goal is to equip States (as well as tribal and territorial entities) and critical energy assets owners and operators with appropriate tools and knowledge to enable them to better protect from and quickly restore and recover against all hazards. It also gives each key stakeholder (State and energy asset owner and operator) the ability to share information with the Federal Government about their unique State and regional needs. Ultimately, this can serve to drive R&D and other technical solutions.

Because energy permeates throughout all other critical sectors, DOE's regional employees will work with other Federal partners within the region to ensure interdependencies are considered. While other key Federal partners have regional representation to address resiliency issues (e.g., Federal Bureau of Investigations, Department of Homeland Security/Federal Emergency Management Agency (FEMA), U.S. Army Corps of Engineers, Department of Transportation, etc.), DOE lacks suitable regional presence. Furthermore, the Department recognizes that not every energy incident is supported under the Stafford Act nor does it involve FEMA. Threats such as aging infrastructure, geomagnetic disturbances, electromagnetic pulse, cyber attacks, or physical attacks on key components of the electric grid or other energy infrastructure rarely fall under the FEMA umbrella. There are also high-impact-low-frequency events such as potential catastrophic earthquakes within the New Madrid Seismic Zone (directly threatening Illinois, Indiana, Missouri, Arkansas, Kentucky, Tennessee, Mississippi and indirectly impacting most of the East Coast) or the 2003 blackout that affected 55 million people in the Northeast. Therefore, support to FEMA emergency response is not the sole driver of the need for the REAs and the activities they will perform.

In addition, residing within the region provides the Federal Regional Energy Advisors with the ability to understand needs and identify some of the trigger points

[10] Applications that are determined to be compliant will be evaluated in accordance with each FOA, and by the standards set forth in EERE's Notice of Objective Merit Review Procedure (76 Fed. Reg. 17846, March 31, 2011) and the guidance provided in the "Department of Energy Merit Review Guide for Financial Assistance," which is available at: http://energy.gov/sites/prod/files/meritrev.pdf.

that otherwise could be missed, especially in this dynamic environment, where new trigger points can arise as a result of newly emerging threats.

An example to consider is last winter's propane shortage which impacted the Midwest and Northeast. A number of events triggered the crisis:

—The agricultural sector experienced a late, wet harvest (Fall 2013) which required a greater than normal amount of propane to dry crops;

—A key pipeline was shut down for maintenance (November and December 2013) which moves supplies from Canada to the Midwest;

—A key propane storage facility in the Midwest was shut down for leak testing which impacted a major propane storage location before the start of winter); and

—Very cold winter impacting the majority of the Nation.

These events or triggers, when viewed individually, might not draw national attention due to the relatively low magnitude of the trigger, but when these triggers are combined, the cascading effects are major. An embedded DOE employee within the region could have been aware of the triggers and been able to provide advance warning and recommend potential solutions well in advance of potential shortages. Moreover, each of the DOE regional employees will have a direct line of communication with one another which will facilitate the identification of geographical interdependencies and a better understanding of trigger points that extend beyond geographical boundaries.

In summary, the Federal Regional Energy Advisor has a dual role: to respond to emergencies and to assist States and critical energy infrastructure owners and operators to minimize energy disruptions as a result of strong resiliency and reliability efforts. In addition, having a consistent physical presence opens up communication channels in both emergency and non-emergency situations. Year-around activities include but are not limited to:

—Leading DOE's regional mitigation efforts against those regional threats that pose the greatest risk to the security of the regional energy sector by developing and coordinating activities with key stakeholders and partners within State and local government and the private sector.

—Conducting or managing complex analysis of existing systems in order to assist individual States with identification of energy policy issues impacting the protection and security of systems that makeup the energy infrastructure within the assigned region.

—Serving as technical expert responsible for mapping new strategic approaches, providing situational awareness and identifying rapidly changing parameters including trigger points leading to potential future impacts to the energy sector both inside and outside of the assigned region.

—Applying expert engineering knowledge of the interdependencies of the energy infrastructure with other critical infrastructure and comprehensive understanding by identifying areas vulnerable to potential threats, attacks, or disruptions.

—Identifying potential opportunities for State and/or regionally-tailored technology or mitigation solutions to protect or enhance the resilience of critical energy infrastructure.

—Engaging with States representatives, critical infrastructure owners and operators, regional Federal partners and collectively identifying potential requirements for technological solutions.

—Evaluating systems and concepts, for the purpose of assessing areas where changes or modification are needed to enhance the integrity and reliability of the existing energy infrastructure.

—Performing work to enable integrated assessments of programs, policies or legislative initiatives affecting the areas involving electricity and other energy systems.

—Leading regional energy exercises or workshops for States and representing DOE in workshops led by other regional s agencies (including FEMA; Army Corps of Engineers; Department of Homeland Security; Environmental Protection Agency; and others).

—Collaborating with other DOE Federal Energy Regional Advisors by identifying dependencies between energy in the region with different critical infrastructure sectors in other regions and vice-versa. This includes providing warnings to other Energy Regional Advisors, DOE Washington DC Office, and Federal partners about trigger points with potential for future cascading effects.

Question. Is there another less expensive way to provide this service without hiring 10 additional Federal workers?

Answer. The level of service envisioned through this structure would be difficult to achieve without the permanent presence of the full time Federal employee in the

respective regions. Nonetheless, DOE is exploring less costly alternatives to meet some of those services.

WIND

Question. Secretary Moniz, the Department has to prioritize its research and development funding to make the biggest impact. With all of the good research and development you have going on at the Department of Energy, should we really be helping wind developers get permits more quickly?

Answer. The Department is focused on addressing major market barriers and challenges to enable wind cost-competitiveness and increased deployment, including access to transmission and mitigation of radar, environmental, and permitting issues which can impact access to higher wind classes and constrain siting decisions. These activities make the process more efficient and transparent, and reduce investment uncertainties by enabling realistic capital and operating cost estimates for financing purposes. Reducing permitting costs and ensuring that permitting and siting decisions are based on the best available science has relevancy to all applications (land-based, offshore and distributed), and is therefore broadly applicable to the goal of deploying cost-competitive wind power.

QUESTIONS SUBMITTED BY SENATOR SUSAN M. COLLINS

OFFSHORE WIND

Question. Mr. Secretary, building on my comments on deepwater offshore wind, another exciting opportunity in marine renewable energy is tidal power. I would like to highlight one project in Washington County, Maine: the Cobscook Bay Tidal Energy Project. This project is the Nation's first commercial, grid-connected tidal energy project, and is the result of innovative research and development by a Maine company with research and development assistance from Sandia National Labs, the National Renewable Energy Laboratory, and a number of institutions of higher education throughout the U.S., including the University of Maine. It has been funded in part by the U.S. Department of Energy, the Maine Technology Institute, and private investors. This project has already injected more than $25 million into the local economy and has supported more than 100 local and supply chain jobs. While Congress has provided critical funding for R&D activities in support of a marine energy industry in the U.S., I believe that our funding strategy must also focus on commercialization of promising technologies. The Department of Energy will continue to play a critical role in efforts to accelerate the speed and scale of marine hydrokinetic technology deployment and help secure American leadership in this emerging clean energy industry. How does the Department's budget request reflect a strategy of capitalizing on the current levels of investment in tidal and other marine energy technologies?

Answer. Fostering a domestic MHK industry requires strategic investments in research, development, testing, and demonstration to drive down the cost and improve the performance of the most promising and cost-competitive technologies. The Department plans to invest $30.5 million in fiscal year 2015 to promote MHK technology development and testing in laboratory and open-water settings, while gathering the operational, environmental, and cost data needed to accelerate the responsible deployment and commercialization of MHK technologies such as wave and tidal. Given the relatively low technical maturity of devices and the nascent state of the industry, DOE will support the technological research and development necessary to drive MHK down the cost curve towards competitiveness with localized electricity markets. Testing and demonstration will also help drive a domestic MHK industry. For example, supporting in-water demonstrations, the Water Power Program will have the opportunity to evaluate the entire innovation process from demonstration inception to completion, validating construction, generation, and operating expenses and informing the investor community on the status and progress of MHK systems. The Department also expects to compile, analyze, and disseminate performance data from device testing to enable the validation and improvement of numerical modeling tools. DOE anticipates that the datasets will be freely available to entrepreneurs and industry to allow for the simulation of device array designs and array impacts on marine surroundings. Continued support of research, development, testing, and demonstration is expected to be important for helping the U.S. MHK industry achieve technology cost-competitiveness at local coastal hurdle rates over the long-term.

NUCLEAR WASTE

Question. I was encouraged to see that the Department's Congressional Justification notes the importance of the safe, long-term management and disposal of used nuclear fuel, and references the strategy released by the Administration in January 2013 that followed the 2012 Blue Ribbon Commission report. The Maine Yankee site in Wiscasset, Maine, is one of twelve shutdown commercial reactor sites in the country that would benefit from an interim storage solution. The facility is staffed 7 days a week, 24 hours a day. The storage fees, insurance, security and taxes come at the expense of Maine utility ratepayers. To date, DOE has not fulfilled its obligation to dispose of this material or removed any spent fuel from the site. An interim-storage solution would allow old nuclear plant sites to be completely decommissioned and put to other beneficial community uses. I understand that there are some State and local jurisdictions that have expressed an interest in discussing the possibility of hosting a centralized storage facility, including most recently Governor Perry of Texas. I certainly hope that the Department has taken advantage of those expressions of interest and have opened a dialogue with some of these officials. Can you spend a few moments telling us what you plan to do with the funding in the fiscal year 2014 Omnibus to advance this issue within your existing authorities?

Answer. In fiscal year 2014, the Department is laying the ground work and developing options for decision makers on the design of an integrated waste management system. Activities being conducted to support the Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste and are limited to those that are permitted under existing legislative authority. These activities include planning for a consent-based siting process, developing conceptual designs for interim storage, planning for large-scale transportation with a focus on used nuclear fuel from shut down reactor sites, and performing cross-cutting analyses and evaluations of storage, transportation, and disposal with an integrated, systems approach.

Question. Can you describe the additional authorities you might need to allow the DOE to enter into an agreement with a State and local jurisdiction whereby DOE would take title to the material at sites such as Maine Yankee and ship that material to a licensed centralized storage facility in a consenting State?

Answer. Authority is needed that permits DOE to proceed with the siting, construction and operation of centralized interim storage facilities. We believe that a linkage between opening an interim storage facility and progress toward a repository is important so that States and communities that consent to hosting a consolidated interim storage facility do not face the prospect of becoming a de facto permanent facility without consent: however the linkage should not be such that it overly restricts forward movement on a pilot or larger storage facility that could make progress against the waste management mission.

WEATHERIZATION ASSISTANCE PROGRAM

Question. Mr. Secretary, the Weatherization Assistance Program request comes close to restoring the 2008 funding level as many of my colleagues and I have been urging. Weatherization plays a vital role in permanently reducing home energy costs for low-income families and seniors in all States. With some of the oldest housing stock in the Nation, Maine has a great many homes that can benefit from weatherization. I wanted to ask you today about the multi-family financing demonstration initiative proposed in the budget request. I noted the proposal to use $15 million of the amount provided for WAP for what is described as competitive "State-level demonstrations of financing methods for low-income multi-family units, including technical assistance for recipients . . . " Will you describe in greater detail what the Department is proposing, including what financing methods the Department has in mind?

Answer. The Weatherization Assistance Program (WAP) proposed in Volume 3 of the Department of Energy fiscal year 2015 Congressional Budget Request that $15 million be available on a competitive basis for weatherization assistance for State level demonstrations of financing methods for low-income multi-family units, including technical assistance for recipient of the total proposed fiscal year 2015 WAP funding, $15 million is expected to be used to fund competitively selected projects to demonstrate the viability of a variety of financing options, including, but not limited to revolving loan funds (RLFs), interest rate buy-downs, on bill repayment (OBR) and other mechanisms in the multi-family residential buildings sector. The financing models that prove successful could support expansion of weatherization activities in the underserved residential multi-family sector.

FUNDING ASSISTANCE TO STATES

Question. I also wanted to ask about available funding to States. We struggled to find every possible dollar to fund Weatherization in the past 2 years, and yet I understand that the Department has not made all the fiscal year 2013 funds available to the States. Also, I understand that the funding notice telling States their 2014 funding level was issued just days before the start of the Program Year. Moreover, States need to make decision about 2015 funding in the next few weeks. Why has DOE been unable release all the 2013 funds to nearly a third of States even though the program year has ended? Do you expect States will have unspent funding in their Weatherization 'pipeline' at the end of the 2014 program?

Answer. The Department appreciates efforts by members of Congress to restore Weatherization Assistance Program (WAP) funding levels. These formula funds are essential to support the infrastructure of States and local agencies that provide WAP services to low-income families throughout the Nation.

For context, the WAP operates on a series of Program Years (PY) for its 59 grantees (fifty States, District of Columbia, five U.S. Territories, and three Native American Tribes). Sixteen grantees use an April 1 PY start date; 31 grantees use a July 1 PY start date; and 8 grantees use an October 1 PY start date.

Congress appropriated $68 million in fiscal year 2012, below prior years due to the temporary availability of unspent Recovery Act and prior-year appropriations. In fiscal year 2013, the Congress provided $64 million for WAP, after sequestration cuts imposed on funding provided by the fiscal year 2013 continuing resolution (CR), which was based on the fiscal year 2012 level. This funding level is below that required to maintain the WAP network at minimum capacity.

Once fiscal year 2013 CR funding became available to allocate in January, 2013, WAP grantees had spent all but $70 million of prior-year funds. Recognizing the shortfall caused by the fiscal year 2013 CR and sequestration, DOE reprogrammed $68 million in additional funds into WAP to help maintain the network. Formulation and congressional approval of the reprogramming were not completed until June 6, 2013, at which point DOE developed the final formula allocations. DOE distributed the official notification of funding availability to the grantees on June 21, 2013, nearly 6 months later than normal.

In addition, there were several new requirements added to improve the quality and accountability of applications in 2013 that required additional time for several grantees. These included: new requirements for using WAP funds for expanded health and safety purposes; detailed descriptions of how training and technical assistance funds were to be used; more details on staffing and other operating costs; and outlining of implementation strategies for quality control certification and ASHRAE 62.2 ventilation standards.

As of May 9, 2014, 51 grantees (or 86 percent) have approved 2013 Grant Applications and are spending funds and weatherizing homes. There are eight grantees (or 14 percent) that still do not have 2013 applications in place. Each has access to sufficient funds to continue operations until their 2013 funds are made available through the approval process. DOE anticipates making the fiscal year 2014 awards on a normal schedule.

DOE expects that there may be a limited amount of funds available in the pipeline at the end of the 2014 Program Year. This is normal, since the WAP is a reimbursement program and final quarter reports and reconciliation occurs after the end of any Program Year. In addition, grantees and subgrantees operate a "production line" business model, meaning that funds need to remain available when transitioning from one program year to the next in order to maintain production while retaining staff, warehouses, vehicles, insurance and other operating costs. It is normal to expect 60 to 90 days of cash equivalent on hand at the end of a program year—or $25 million to $40 million—to fund operations until new contracts can be executed between grantees and their subgrantees.

As of April 30, 2014, grantees had $107 million available in unspent funds from Program Year 2013 and previous balances. The grantee network reports average WAP expenditures of $14 million per month or $42 million per quarter. The spending levels are lower than normal because of lower allocations in 2012 and 2013. The network has about 7 months of funding left from all previous allocations.

The 2014 Program Year expenditures are anticipated to begin within the next 30 to 60 days as new applications are approved. It is expected that the average per month expenditure will increase to normal levels ($17 million to $20 million per month) now that WAP funding has returned to near normal. For the last 8 months of the 2014 Program Year, WAP expenditure should be $120 million to $140 million—leaving a balance of $35 million to $55 million as transition to the 2015 Pro-

gram Year. This is within the normal range for funds available to grantees and subgrantees from 1 year to the next as described above.

Question. Will you provide an estimate of the program's capacity for expending the available funding before the start of the 2015 program year?

Answer. As stated in the response to question 2 above, the 2014 Program Year expenditures are expected to begin within the next 30 to 60 days. It is expected that the average per month expenditure will increase to normal levels—$17 million to $20 million per month—now that WAP funding has returned to higher levels. For the last 8 months of the 2014 Program Year, WAP expenditure should be $120 million to $140 million, leaving a balance of $35 million to $55 million as transition to the 2015 Program Year. This balance is within the normal range from 1 year to the next.

Question. Have procurement and contracting processes slowed down the funding flow?

Answer. DOE has been managing a transfer in WAP procurement functions from the National Energy Technology Laboratory (NETL) to the Golden Service Center in Golden, Colorado. As noted in the DOE Response to Question 1 above, there were new program requirements associated with the fiscal year 2013 funding. DOE staff are working to streamline the application review and approval processes and to ensure timely approvals of grant applications.

DEEP OFFSHORE WIND

Question. The United States has nearly 4,000 GW of offshore wind capacity within 50 miles, enough to power the U.S. four times over. Approximately two-thirds of this capacity is in deep water. In order to foster the development of ocean energy resources, other countries such as the United Kingdom, Canada, Germany, and Portugal have established test sites for ocean energy. They have funded environmental-permitting studies and provided electrical infrastructure, including undersea cabling and grid interconnection, for these test sites. Private industry, working with research institutions, has then used these "ready" sites to build and test advanced offshore wind turbines and other ocean energy harvesting devices, spurring further commercial developments. Considering that the Advanced Technology Demonstration projects are currently slated to each test one proprietary basic technology family, their ability to spur innovation could be multiplied many-fold if we can build on this investment. What role do you see for DOE to establish national offshore wind test sites that are designed to test multiple technologies for years to come?

Answer. The Department does not currently have plans to establish dedicated national offshore wind test sites due to the cost, size, and timelines needed to test offshore wind systems, as well as the fact that many challenges for offshore wind are regional and even site-specific. However, the fiscal year 2015 Budget Request supports continued operation of world class testing infrastructure to provide a wide breadth of testing and research capabilities for all wind market segments. The program will continue to support its existing full scale, accredited test facilities, and also continue to support the development of test methods, which are critical for supporting U.S. wind energy innovation and cost of energy reductions. The test infrastructure supports wind turbine design testing and wind turbine component and system research.

For example, the fiscal year 2015 budget supports the development of blade and drive train test procedures and methods through partnerships with the Massachusetts Wind Technology Testing Center for blade testing and the Clemson Large Wind Turbine Drivetrain Testing Facility. These state of the art facilities have unique testing capabilities and are sized to support the trend toward larger wind turbines for both utility scale and offshore wind.

The advanced technology demonstration projects for offshore wind will also test out new innovations in offshore wind technologies, conduct additional research on topics such as environmental impacts and interactions between turbines, and share data with DOE to benefit the industry at large.

Question. In addition, grid connectivity is a huge cost barrier for smaller projects, and can be estimated near $30–50 million for a project in the 25 megawatt range that is 10 miles from shore. Has DOE considered providing competitive funding to permit and construct grid interconnection for one or more national test sites?

Answer. In fiscal year 2014, the second phase of the competitively selected Advanced Offshore Wind Demonstration projects will provide funding and technical assistance, and will support inter-agency coordination, to accelerate the implementation of the offshore wind demonstration project by, in part, eliminating uncertainty due to large-scale market and permitting barriers, including all necessary grid interconnection requirements.

In fiscal year 2011, the Wind Program also competitively selected four projects to study the impacts of adding offshore wind to the U.S. grid. These efforts, which are well underway, include a national multi-year integration, resource, and technology assessment with participation from industry, labs, and academia, as well as regional studies on the Carolinas, Mid-Atlantic, and Great Lakes.

QUESTIONS SUBMITTED BY SENATOR LISA MURKOWSKI

NATIONAL ARCTIC STRATEGY

Question. In the Administration's Implementation Plan for the National Strategy for the Arctic Region, the Department of Energy is listed as the lead agency for three programs. These include:

—Pursuing development of renewable energy resources;

—Climate predictions; and

—Integrate Arctic Regional Models.

The Department was also designated as a supporting agency for numerous other projects. The intent of having multiple agencies involved is to avoid duplication, make the Federal Government's role in the Arctic more efficient and effective, and enhance the potential for government support by showing the interest across agencies.

Could you tell me what funding is included in your Department's budget request for the three programs DOE is the lead agency for, as well as any other projects the Department is involved in for the Arctic region?

Answer. DOE supports the National Strategy for the Arctic Region (NSAR) and its Implementation Plan through various activities across a number of DOE program offices. The Office of Indian Energy anticipates allocating approximately $750,000—30 percent of its total technical assistance budget—to Arctic efforts in Alaska. The Office of Science has also requested $37 million for ongoing basic research to support the NSAR. The Office of Fossil Energy has a $15 million budget request for gas hydrates, which will be distributed across several projects using future Funding Opportunity Announcements, some of which may be Arctic-related. Further, the Office of Emergency Operations budgets $50,000.00 per year for Arctic Council related activities. While the program is not involved in any of the three programs under the National Strategy for the Arctic Region, our participation in the Arctic Council is to address radiological issues.

Question. What is the current status of the WIPP facility and how does its shutdown impact your current fiscal year budget and your budget request for the next fiscal year?

Answer. DOE is working to determine the source of the radioactive release, and multiple entries into the underground repository have been completed. The teams continue to take videos and photos and gather technical information for analysis by industry leading experts.

DOE is currently evaluating impacts on fiscal year 2014 work in progress, and fiscal year 2015 plans, both in response to the fire and radiological events at WIPP and impacts of the WIPP shutdown on TRU waste generator sites. The root cause of the incidents is still not precisely known, so cost and schedule for the recovery plan is still under development.

LNG LICENSING—JORDAN COVE LNG PROJECT

Question. DOE issued a conditional license for the Jordan Cove LNG project last month. According to the text of the order: "To the extent U.S. exports can diversify global LNG supplies, and increase the volumes of LNG available globally, it will improve energy security for many U.S. allies and trading partners. As such, authorizing U.S. exports may advance the public interest for reasons that are distinct from and additional to the economic benefits identified in the LNG Export Study." Do you have any plans to expend additional departmental resources on commissioning yet another LNG export study?

Answer. As of April, 2014,[11] the Department has not determined whether or not to update the 2012 Two-Part LNG Export Study. However, it bears observing that

[11] On May 29, 2014, the Department of Energy announced plans to undertake an economic study in order to gain a better understanding of how potential U.S. LNG exports between 12 and 20 billion cubic feet per day (Bcf/d) could affect the public interest. Using more recent data from sources like the Annual Energy Outlook 2014, the Energy Information Administration (EIA) will update its 2012 LNG Export Study, which only looked at export cases of 6 and 12 Bcf/d. Following the EIA update, DOE will again contract for an external analysis of the eco-

the Department has found in its most recent decisions, including Jordan Cove, that the overall conclusions reached in the 2012 LNG Export Study are still valid. This finding was based in part on a review of the Annual Energy Outlook 2014 which contains the most up-to-date analysis from the Energy Information Administration. In order to maintain high confidence in future actions, there may come a time when the Department seeks to conduct additional study.

Question. How much flexibility do you have, as Secretary, to modify DOE's licensing process with an eye towards streamlining?

Answer. As of April, 2014,[12] DOE could modify its licensing process, but it would need to be done carefully, with a reasoned explanation for changing course, while taking into consideration the fairness to applicants and responsiveness to market forces.

MARINE HYDROKINETICS AND TEST CENTERS

Question. Coming from Alaska, I am a big supporter of funding to advance development of a marine hydrokinetic industry, producing so-called ocean wave, tidal, current and thermal energy. I see your water power budget does call for a $3.9 million increase in funding, to $62.5 million, a rather modest increase apparently directed toward more convention hydropower from non-powered dams. My concern is that you seem, by this budget, to be cutting funding for wave, tidal and current energy down to about $30 million from $41 million this year and $35 million in fiscal year 2013. This industry is on the cusp of demonstrating commercial systems, but needs more help with funding of additional demonstration projects to prove the commercial viability of systems and to get projects into the water to prove their efficiency and durability. This budget doesn't seem to provide enough funding for demonstrations, plus the continual need for research and testing centers. By comparison, wind is being proposed for a $26.8 million increase and wind is a very mature technology. Why isn't the Department devoting more to fund research and demonstrations for marine hydrokinetics?

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nomic impact of this increased range of LNG exports and other effects that LNG exports might have on the U.S. natural gas market. While these studies are underway, the Department will continue to act on applications as stated above. To date, the Department has issued final authorization for export to non-FTA countries at a rate of 2.2 Bcf/d. If at any future time the cumulative export authorizations approach the high end of export cases examined, the Department will conduct additional studies as needed to understand the impact of higher export ranges. At all levels, the cumulative impacts will remain a key criterion in assessing the public interest.

Both the EIA study and the external analysis of economic impacts will be made available for public comment.

[12] On May 29, 2014, the Department of Energy announced that in order to reflect changing market dynamics, the Department is proposing to review applications and make final public interest determinations only after completion of the review required by environmental laws and regulations that are included in the National Environmental Policy Act review (NEPA review), suspending its practice of issuing conditional commitments. The proposed changes to the manner in which LNG applications are ordered and processed will ensure our process is efficient by prioritizing resources on the more commercially advanced projects, while also providing the Department with more complete information when applications are considered and public interest determinations are made.

The Department's practice of issuing conditional authorizations to export LNG to non-FTA countries was designed to provide regulatory certainty before project sponsors and the Federal Energy Regulatory Commission (FERC) spend significant resources for the review of export facilities required by environmental laws and regulations that are included in the NEPA review. However, market participants have increasingly shown a willingness to dedicate the resources needed for their NEPA review prior to receiving conditional authorizations from the Department of Energy. In response to these and other developments, the Department intends to make final public interest determinations only after a project has completed the NEPA process, instead of issuing conditional authorizations. By removing the intermediate step of conditional decisions and setting the order of DOE decisionmaking based on readiness for final action, DOE will prioritize resources on the more commercially advanced projects.

The proposed procedural change will improve the quality of information on which DOE makes its public interest determinations. By considering for approval those projects that are more likely to actually be constructed, DOE will be able to base its decision on a more accurate evaluation of the project's impact on the public interest. DOE will also be better positioned to judge the cumulative market impacts of its authorizations in its public interest review. While it is not assured that all projects for which NEPA review is completed will be financed and constructed, projects that have completed the NEPA review are, generally speaking, more likely to proceed than those that have not.

In response to an evolving market, this proposed change will streamline the regulatory process for applicants, ensure that applications that have completed NEPA review will not be delayed by their position in the current order of precedence, and give the Department a more complete understanding of project impacts.

Answer. EERE is taking MHK research, development and demonstration seriously, and does believe it has an important role in the Administration's "all of the above" energy strategy moving forward. Given the relatively low technical maturity of devices and the nascent state of the industry, significant technological research and development is necessary to drive MHK down the cost curve towards competitiveness with localized electricity markets.

In fiscal year 2015, the Department's Budget Request reflects a more equitable split across MHK and hydropower. The $30.5 million requested in fiscal year 2015 for MHK allows the Water Power Program to continue its ongoing efforts to advance water power technologies and accelerate their market adoption. For example, the fiscal year 2015 Request supports continued MHK applied research and development and testing of innovative component technologies designed specifically for the challenges of the marine environment, and testing and research to address key environmental uncertainties that arise within the rapidly developing industry, among other activities. In summary, the Department's Budget Request provides the priority and funding stability necessary to continue making progress in marine and hydrokinetic technologies.

Question. Let me follow up. Congress in 2007 created the National Marine Renewable Energy Centers to conduct research on marine hydrokinetics and that legislation gave them the authority, at least in DOE's past views, to test and verify the performance of MHK devices. This year you seem—admittedly with congressional involvement in the fiscal year 2014 consolidated budget bill—to want to recreate the test centers inside DOE. I can live with the Department wanting a testing facility, but only if the Department does not sacrifice all its already sunk investments in the test centers. Will you continue to provide operational plus planning and construction grant funding for competitively selected open-ocean deep water wave energy testing facilities if we approve this budget?

Answer. The Water Power Program will aim to test and demonstrate the viability of MHK systems at pre-permitted open-water site(s)—that is, at existing sites and test facilities that DOE has helped to develop for which FERC licenses and environmental assessments have already been secured. While the Department is continuing to support ongoing work such as the fiscal year 2013 Wave Testing Infrastructure Development Funding Opportunity and existing collaborations with the Navy's Wave Energy Test Site, no new funding is planned in fiscal year 2015 for the planning or construction of deep-tank or open-ocean deep water wave energy test facilities.

Following Congressional intent in the explanatory statement accompanying the fiscal year 2014 Omnibus Appropriations Act, the Department will not provide funding support for a deep tank test facility in fiscal year 2014. The Department will not replicate any existing research and device verification facilities, including any facilities that might exist at DOE NMRECs.

METHANE HYDRATES

Question. Mr. Secretary your budget calls for a $14.4 million increase in funding for natural gas technologies. And it mentions your plans to "conduct lab and field-based research" on methane hydrate dynamics. Back in 2012 the Department conducted what appeared to be a very successful test in Alaska's Prudhoe Bay oil field of technology using carbon dioxide to help unlock methane from hydrate structures—a test predominately paid for by industry including the Japanese. I want to see enough funding in your budget to support practical testing of technology to unlock methane hydrates, while also adequately funding research to understand the hazards and environmental issues with tapping this resource. Exactly what amount and type of field research is the Department intending to undertake in fiscal year 2015 by this proposal?

Answer. In fiscal year 2012 and fiscal year 2013, appropriations were used to fund Funding Opportunity Announcements (FOAs) to re-engage the research community and the National Labs in the development of a comprehensive portfolio of projects which researches and addresses critical issues in methane hydrate R&D and the resulting resource, hazard, and environmental implications. A total of 21 projects were awarded supporting laboratory, modeling (including analysis of the data acquired during the successful arctic testing during fiscal year 2012 that you referenced), and to a lesser extent, field research opportunities in the areas of resource characterization and increasing the understanding of methane hydrates' role in the natural environment. For fiscal year 2014, DOE issued a FOA for applications that focus on two technical areas: (1) field evaluation of the potential resource through scientific tests in Alaska, and (2) field programs for marine gas hydrate characterization. In fiscal

year 2015, the increased appropriation requested will be utilized to fund the field projects awarded through the fiscal year 2014 FOA.

Question. Are you planning a year-long flow test of this technology in your budget to be conducted with help from the State of Alaska and the oil industry on Alaska's North Slope? And is the funding sufficient to fund such a test?

Answer. The nature and duration of any project is dependent upon the projects that are proposed and awarded in response to the fiscal year 2014 FOA. The State of Alaska has reserved lands on Alaska's North Slope which can be utilized for arctic methane hydrate research, and potential applicants are aware of the availability of those State lands. The fiscal year 2014 FOA makes it clear that applications proposing highly-leveraged projects (i.e., a high recipient cost-share) are anticipated.

Question. Does your budget provide enough money to do both in the coming year?

Answer. The $15 million request provides adequate funding to ensure steady progress towards our goal of furthering the scientific understanding of naturally-occurring gas hydrates; understanding the links between methane hydrates and global environmental processes; and the resulting resource, hazard, and environmental implications. Field testing and resource characterization projects will be designed to simultaneously provide research on environmental implications.

GEOTHERMAL ENERGY

Question. The geothermal budget proposes a hefty increase of $15.7 million. I have supported increases in recent years to push enhanced geothermal system technology and demonstrations. The biggest risk in geothermal is finding the exact location of the resource to reduce expensive exploration drilling. What are we getting for that increase?

Answer. The Geothermal Technology Office budget request will allow us to advance the Frontier Observatory for Research in Geothermal Energy (FORGE), which DOE hopes will accelerate a commercial pathway to Enhanced Geothermal Systems (EGS) development in the United States. EGS is critical as it provides the potential to create viable geothermal resources that otherwise might be commercially impractical. In addition, the increase proposes key initiatives intended to reduce the cost and risk of geothermal development, such as critical materials, play fairway mapping, and the new subsurface crosscut that seeks to accelerate innovation in below ground R&D across DOE. Play fairway mapping and resource confirmation from temperature gradient wells or slim hole exploration wells holds excellent potential for locating and testing resources in a cost-efficient manner.

Specifically, the increased funding reflects a number of key initiatives that will diversify the Geothermal Technologies Office's RD&D portfolio:

—the initiation of site characterization activities for the EGS FORGE initiative;
—validation of play fairway maps through targeted exploration of slim hole and/or temperature gradient well drilling to characterize and confirm the most prospective geothermal areas identified;
—funding to advance extraction of important materials from geothermal brines —such as lithium, zinc or manganese—as additional value streams to power production; as well as additional funding for advanced direct use, and cascaded surface technologies whose applications extend the reach of geothermal beyond the western U.S.;
—an incubator activity that will fund high-impact "off-roadmap" geothermal technologies and help industry surmount critical technological barriers to commercialization; and
—a subsurface crosscut initiative that leverages DOE resources and expertise to address common subsurface R&D challenges across the agency.

Question. Exactly what will we get from additional EGS funding in fiscal year 2015 and what will we get from your "play fairway" effort to provide better public assessments of exploration risks—I assume new nationwide heat maps—showing the real potential and location of conventional geothermal resources?

Answer. *EGS.*—EGS has advanced from a long-term vision to a commercially-viable growth opportunity for geothermal, with an estimated resource potential of 100+ GW in the U.S. The National Renewable Energy Lab further estimates that in-field and near field EGS projects have the near-term potential to add 7–10 GWe in the U.S. alone, at highly competitive rates and at very low risk. Building off of GTO's successful portfolio of EGS demonstration projects, the Geothermal Technologies Office is focused on creating and accelerating a replicable commercial pathway to large-scale, domestic EGS power production through the Frontier Observatory for Research in Geothermal Energy (FORGE) initiative. The fiscal year 2015 request focuses on site characterization at FORGE, to identify the best candidate site for developing a DOE-managed site for high-risk and transformative EGS test-

ing and validation—at a larger and more complex scale than the current EGS demonstration portfolio.

Play Fairway.—In January 2014, EERE/GTO announced $3 million to spur geothermal energy development using play fairway analysis, a technique that identifies prospective geothermal resources in areas with no obvious surface expression. These mapping projects, which will be regional in nature, are intended to focus on using existing geologic and geophysical data to develop maps that identify areas with a higher probability of containing a geothermal resource. While commonly used in oil and gas exploration, play fairway analysis is not yet used in the geothermal industry. By improving success rates for exploration drilling, this data-mapping and analytical tool could help attract investment in geothermal energy projects across mapped regions and significantly lower the cost of geothermal exploration. The ultimate goal is to move beyond the "known geothermal resource areas" (identified by industry and the government in the 1970s and 80s) to a new and more-highly reliable approach to resource and opportunity mapping.

Question. Are you making any progress in that regard and exactly how will funding in fiscal year 2015 produce better results?

Answer. The Geothermal Technologies Office has made significant progress in our EGS R&D and demonstrations portfolio, which serves as the technical foundation for our FORGE initiative. Similarly, the Office has made key advancements over the years in our Innovative Exploration Technologies, and those lessons learned undergird the Play Fairway Analysis initiative. The Play Fairway Analysis competitive announcement was issued in January 2014, and the Department is currently reviewing applications; the FORGE competitive announcement is scheduled for release in Q3 fiscal year 2014. Requested fiscal year 2015 funding is expected to advance the next phase of development in both the FORGE and Play Fairway efforts, which were launched in fiscal year 2014. Planned activities in fiscal year 2015 include:

—*FORGE.* The identification and initial characterization of a FORGE site that maximizes scientific and operational return on investment with the broadest applicability to future industry activity. We expect to issue the FORGE competitive announcement in Q3 fiscal year 2014.

—*Play Fairway.* Validation of play fairway maps through additional, select data collection such as temperature gradient wells. We expect to announce awardees of the fiscal year 2014 FOA by Q4 fiscal year 2014.

RENEWABLES CONSTRUCTION AID

Question. Given the Administration's concerns about carbon emissions, I would think this administration would want to encourage construction of renewable energy generation projects. Back in 2007 Congress passed two provisions that I sponsored in the Energy Independence and Security Act, Section 803 for all renewables and Section 625 for solely geothermal projects in high-cost areas, that provided grants of up to 50 percent to aid in the actual construction of renewable energy projects. The Department has never proposed to provide any money to fund such grants, even in years such as 2009 when it received vast additional funding under the terms of the American Recovery and Reinvestment Act. Why is the Department so adverse to modify its priorities and provide some assistance to implement these matching grants for projects in high-cost areas and actually bring more low-carbon energy production on line?

Answer. Section 803 and section 625 of the Energy Independence and Security Act (EISA) allows 50:50 cost share of renewable energy construction grants. To date, the Department has not requested funding for Section 803 or 625. In alignment with the Department's mission, DOE believes that investment in research and development will provide the maximum rate of return on taxpayer investment as compared to more expensive, location-specific demonstration and deployment projects. For instance, EERE's total fiscal year 2015 budget request for renewable electricity is $521.3 million. Even if this amount were matched by private cost share, it would be dwarfed in comparison to what is invested in building renewable energy projects with other policy incentives. However, the Department will look to sponsor, when appropriate, demonstration projects where applying this authority to validate new technology performance and economics in high cost areas could spur follow-on private investment and be replicated at scale. DOE looks forward to working with Congress and other government agencies to determine the best policy mechanisms and existing authorities to incentivize private investment in building new renewable energy projects.

QUESTIONS SUBMITTED BY SENATOR LINDSEY GRAHAM

MIXED OXIDE FUEL FABRICATION FACILITY

Question. The President's fiscal year 2014 budget request asked for money for construction of the Mixed Oxide Fuel Fabrication Facility (MO_X). Congress authorized and appropriated funds in fiscal year 2014 for this purpose. However DOE now plans to use the money to put MO_X in cold standby.

What does "cold standby" mean?

Answer. The Department has determined and communicated to the contractor, MO_X Services, that we will continue with construction activities through 2014, retaining the key nuclear engineers and other highly-skilled workers that will be needed regardless of the path forward. The NNSA intends to work with the contractor on a plan for placing the project in cold standby during fiscal year 2015, and we are continuing our ongoing discussions with Congress as they review and evaluate the fiscal year 2015 budget request.

Beginning in fiscal year 2015, the Department intends to place the MO_X project in a reversible cold standby condition, preserving the taxpayer investment while we independently validate whether there is a more efficient path forward to dispose of excess plutonium. As part of these efforts, we would stop design and construction activities not required to support placing the MO_X facility in a safe and secure state. This action will minimize costs while working with MO_X Services to develop a detailed cold standby execution plan. This plan would include but not be limited to closing and securing design documents, developing equipment maintenance and preservation plans, completing work efforts to protect the site such as closing construction openings, closing pipe and conduit, and securing purchased materials, and developing a staffing retrograde plan for professional and craft labor. We will complete subcontracts where it is more cost effective to finish or take delivery rather than suspending or terminating a subcontractor's performance. We will account for and protect Government property, records, and data and perform any other activities that the project teams believe need to be taken to preserve the Government investment should the project be restarted.

Question. How much cost will it add to the MO_X program to put the facility in cold standby? How much would it cost the taxpayer to terminate the MO_X program?

Answer. If the MO_X project were placed in cold standby we would minimize costs to the greatest extent and preserve the taxpayer investment while we independently validate that there is a more efficient path forward to dispose of excess weapons plutonium. The MO_X project has not been terminated.

Question. When do you plan to send the program direction letter to the site?

Answer. A letter of direction was provided to the contractor on April 30, 2014 directing MO_X Services to continue construction through September 2014 in accordance with the fiscal year 2014 execution plan they had previously submitted.

JOHN MACWILLIAMS

Question. During our multiple meetings on MO_X, you and John MacWilliams both stated that after studying the alternatives you chose MO_X as the preferred path forward. John MacWilliams also communicated this to the contractors late last year. What changed during the budget process that led DOE to put the program in cold standby?

Answer. It became clear during the analysis of plutonium disposition options that given the continuing cost increases and other contributing challenges, the MO_X fuel approach will be significantly more expensive than anticipated. Given a life cycle cost estimate for the program of approximately $30 billion, we determined that it would be best to pause and to look at our options.

PLUTONIUM AGREEMENT WITH SOUTH CAROLINA

Question. Is there any way for the government to comply with the terms of 50 USC 2566 which mandate a metric ton of plutonium leave South Carolina by January 2016? Specifically under existing authorities, how can DOE remove a ton of plutonium from SC by the date required in the statute? Where would it be stored?

Answer. We understand our commitments under the current legislation, and we will look to ensure compliance with the law. The Department will submit a report to Congress on options for removing an amount of defense plutonium or defense plutonium materials from the State of South Carolina equal to the amount of defense plutonium or defense plutonium materials transferred to the State of South Carolina after April 15, 2002.

U.S.-RUSSIA PLUTONIUM MANAGEMENT AND DISPOSITION AGREEMENT

Question. The President's budget states that the Administration "is committed to the U.S.-Russia Plutonium Management and Disposition Agreement" yet it puts the only disposition path for plutonium in "cold standby." These statements seem to conflict. How do you reconcile them?

Answer. The Administration recognizes the importance of and remains fully committed to the U.S.-Russia Plutonium Management and Disposition Agreement (PMDA), whereby each side commits to verifiably dispose of at least 34 MT of weapon-grade plutonium. The PMDA specifically provides authority to the Parties to agree on any disposition methods that are not already provided for in the agreement. Therefore, a decision to place the MO_X facility in cold standby in no way diminishes the U.S. commitment to the PMDA.

Question. Will the budget request require the U.S. to renegotiate that agreement with Russia?

Answer. No. Article III, paragraph 1 of the PMDA reads: "Disposition shall be by irradiation of disposition plutonium as fuel in nuclear reactors or any other methods that may be agreed by the parties in writing." Therefore, the Parties already have the authority to consider and agree on other disposition methods.

Question. Is now the best time to start renegotiating a nonproliferation agreement with Russia?

Answer. Since the PMDA already gives the parties the right to agree on other disposition methods, incorporation of a non-irradiation disposition method would not require renegotiation of the agreement.

Question. What concessions do you expect Russian's will ask for if the U.S. pushes to renegotiate the PMDA?

Answer. Russia has indicated that it remains committed to the PMDA and to its program.

NEGOTIATIONS WITH RUSSIA

Question. Regarding negotiations with Russia, On April 4, Anne Harrington testified before the House that, "we had an unexpectedly sympathetic reaction" when discussing the challenges of MO_X. Can you give greater context to this comment?

Answer. In the context of budget considerations for the U.S. disposition program, Russian interlocutors made reference to the period in 2006–2007 when cost considerations on their side led them to propose a change in their disposition program to concentrate on options that would be much more closely aligned with their own planned nuclear energy program, and by analogy appeared to be indicating a sympathetic reaction to U.S. budgetary constraints. Russia had conceded the point that disposing of plutonium is a costly effort.

Question. When did this conversation take place?

Answer.

When:	April 5, 2013
Participants:	DOE/NNSA (Assistant Deputy Administrator for Fissile Materials Disposition Peter Hanlon), and Russian Official (Vladimir Kuchinov, Advisor to Rosatom Director General)
Discussion:	Briefly discussed the fiscal year 2014 budget request and the beginning of the U.S. analysis of plutonium disposition options.
When:	April 9, 2013
Participants:	DOE (Deputy Secretary Poneman) and Russian Officials (Nikolai Spassky, Deputy Director General, Rosatom State Corporation for Atomic Energy of the Russian Federation)
Discussion:	Discussed with Russian officials the fiscal year 2014 budget request and the beginning of the U.S. analysis of plutonium disposition options.
When:	April 25, 2013
Participants:	DOE/NNSA (Assistant Deputy Administrator for Fissile Materials Disposition Peter Hanlon), and Russian Official (Vladimir Kuchinov, Advisor to Rosatom Director General)
Discussion:	Discussed with Russian officials the nature of the U.S. analysis of its plutonium disposition options in light of the fiscal year 2014 budget request.
When:	December 5, 2013
Participants:	DOE (Deputy Secretary Poneman) and Russian Officials (Nikolai Spassky, Deputy Director General, Rosatom State Corporation for Atomic Energy of the Russian Federation)
Discussion:	Brief call regarding the meeting on December 10, 2013.
When:	December 10, 2013

Participants:	DOE (Secretary Moniz and Deputy Secretary Poneman) and Russian Officials (Rosatom Director General Kiriyenko and Ambassador Kislyak of the Russian Federation to the United States)
Discussion:	Provided an update on the ongoing U.S. analysis of plutonium disposition options.
When:	December 18, 2013
Participants:	DOE/NNSA (Assistant Deputy Administrator for Fissile Materials Disposition Peter Hanlon), and Russian Official (Vladimir Kuchinov, Advisor to Rosatom Director General)
Discussion:	Updated Russian officials on the status of the U.S. analysis of plutonium disposition options.
When:	March 3, 2014
Participants:	DOE (Secretary Moniz) and Russian Officials (Sergey Ivanovich Kislyak, Ambassador of the Russian Federation to the United States)
Discussion:	Brief call to update Russian officials on the status of the U.S. plutonium disposition program.
When:	March 11, 2014
Participants:	DOE/NNSA (Assistant Deputy Administrator for Fissile Materials Disposition Peter Hanlon), and Russian Official (Vladimir Kuchinov, Advisor to Rosatom Director General)
Discussion:	Briefly discussed the fiscal year 2015 budget request for U.S. plutonium disposition program and updated status of the U.S. analysis of disposition options.

Question. What conversations has our government had with the Russians regarding MO_X?

Answer. Please refer to the question above.

SAVANNAH RIVER SITE PLUTONIUM

Question. What is the current disposition path for the 12.8 MT of weapons grade plutonium already at the Savannah River Site?

Answer. Of the 12.8 MT, the planned disposition path for approximately 7.8 MT is through the MO_X fuel approach, some of which is contingent on completing NEPA analysis. The preferred alternative for the remaining material as identified in the July 2012 Draft Surplus Plutonium Disposition Environmental Impact Statement is at the Waste Isolation Pilot Plant (WIPP).

Question. Does DOE plan to ship more plutonium to South Carolina before the issues surrounding disposition are resolved?

Answer. As of January 1, 2014, the Department has suspended any further transfers of defense plutonium or defense plutonium materials for processing at the MO_X facility to South Carolina.

Question. What has DOE done since the budget was released to continue negotiations with the contractors to bring down the cost of the program?

Answer. We have had discussions with the contractor about ways to reduce costs and intend to continue to do so.

JAPANESE PLUTONIUM

Question. Recently, the New York Times reported that the Administration is seeking to bring over 700 pounds of weapons grade plutonium from Japan to the United States for disposition. Where does the U.S. plan to store this material in the United States?

Answer. NNSA continuously looks to identify additional nuclear and radiological materials that should be removed to eliminate the risk that they could fall into the hands of terrorists. In all cases, NNSA works with its foreign partners to identify the best disposition pathway to eliminate material, and anticipates removing or dispositioning approximately additional 1,100 kg of highly enriched uranium (HEU) and plutonium through 2022.

DOE has yet to make final determination as to where the material from Japan will be received and stored. Before a final determination is made, DOE will follow all requirements of the National Environmental Policy Act (NEPA).

Question. What is the disposition path for this material?

Answer. DOE has yet to make final determination as to where the material from Japan will be received and stored.

Question. Under 50 U.S.C. 2566, can you send this material to SRS?

Answer. 50 U.S.C. 2566 applies only to defense plutonium materials to be processed by the MO_X facility. The material from Japan has not been designated to be processed by the MO_X facility.

Question. SC DHEC sent a letter to DOE requesting a waste determination be completed on this plutonium prior to making plans to ship the material to SC. Can you commit to honoring this request?

Answer. DOE will ensure that you and this committee are informed when a final determination is made as to where the material from Japan will be received and stored.

QUESTIONS SUBMITTED TO HON. DANIEL B. PONEMAN

QUESTIONS SUBMITTED BY SENATOR PATTY MURRAY

BONNEVILLE POWER ADMINISTRATION

Question. Deputy Secretary Poneman, as you know I have been closely following the Department of Energy and Bonneville Power Administration's (BPA) actions since DOE's Inspector General first reported findings of unlawful and discriminatory hiring practices effecting veterans and others seeking employment at BPA in July 2013. The failures in BPA's hiring system and its impacts on veterans are simply unacceptable.

While I am encouraged by the steps that you and Administrator Mainzer are taking to fix the problems within BPA's human resources department, your priority should continue to be ensuring that all veterans who were disenfranchised are made whole. To that end, please provide me with an update on the "get well-plan" you announced in October 2013. Specifically:

How is the work on reconstructing the more than 1,200 hiring cases progressing? It was my understanding that it was your goal to complete the reconstruction by September 30, 2014. Is the Department on track to meet this goal?

Answer. The Department is making good progress toward the September 30 goal for completion of the reconstruction process. As of May 2, the case reconstruction process is as follows:

—Total Cases—75 percent of all cases have been reconstructed
—Delegated Examining cases (jobs that were open to the public)—74 percent complete
—Merit Promotion cases (jobs that were open only to current Federal employees and those with a special status allowing them to apply)—82 percent complete
—BID List (blue collar positions open to current BPA employees only)—100 percent complete
—Ninety-nine priority placements (applicants entitled to a job offer) have been identified. From these, 24 veterans have accepted job offers and 43 more offers are in process. There have been 32 offers declined. See the attached charts for reference.

Question. How many illegal hires have you found in the reconstruction process? Of these, how many impacted veterans?

Answer. BPA's reconstruction is to determine whether it fully followed Federal hiring practices in each case. So far in the reconstruction process, BPA has identified, through 34 separate hiring cases, 99 disadvantaged veterans who warrant priority placement. These priority placements have resulted from 24 veterans accepting job offers.

Question. How many disenfranchised individuals were offered and in turn placed in a job at BPA?

Answer. BPA has completed 24 priority hires to date and has 43 in process. Another 32 impacted veterans have declined job offers.

Question. Does DOE expect to complete all necessary placements within the available openings BPA currently has?

Answer. Yes.

Question. At the same time, it is also important that you educate and train BPA's human resources department in order to make sure this never happens again. How is the education and training of human resources department employees—managers included—on Federal hiring regulations and practices progressing? When will this process be completed and what metrics will be use to determine that BPA can again make hiring decisions on its own, without the oversight of the Department?

Answer. BPA has made significant progress towards regaining full Human Resources (HR) authority. The BPA "Get Well" Plan was signed by BPA on February 6, 2014. Key activities necessary to regain HR authority, as outlined within the BPA "Get Well" Plan, are being accomplished on time or ahead of schedule. BPA has worked in a collaborative and proactive manner with the Department of Energy's (DOE) Office of the Chief Human Capital Officer (CHCO) to facilitate the restoration of full HR authority necessary for it to operate independently and in a manner that is in accordance with applicable legal, regulatory, and Departmental policy re-

quirements. BPA has regained provisional authority to conduct labor relations activity, conduct its internal bid list process, and process personnel actions.

Additionally, BPA's Human Capital Management (HCM) staff has completed all required Office of Personnel Management training and regained their individual delegated examining certification. BPA is migrating to the Department's "Hiring Manager" HR IT recruitment system to ensure consistency with the rest of the Department's recruiting efforts.

Question. Finally, the "get well-plan" included a 6 month review for the new BPA–DOE human capital and BPA–DOE general counsel reporting arrangements. April marks 6 months under the "get well-plan." Have these reviews taken place? If so, I ask that you explain the Department's next steps with regard to these reporting arrangements and whether sufficient progress has been made to end these reporting arrangements. If not, I ask that these reviews take place as soon as possible. I note that in a November 8, 2013 letter to Secretary Moniz signed by 23 members of the Northwest Delegation, including myself, we made a request that "in the event that this reporting relationship is still in effect after 6 months, we request that DOE explain to the Northwest Congressional delegation in writing why this arrangement is still in place."

Answer. The 6 month review occurred on April 24, 2014, and a copy of the memorandum which DOE and BPA officials (including Administrator Elliot Mainzer) developed for the Deputy Secretary was provided to your office when finalized.

The reporting relationship of BPA HR to CHCO will be reevaluated when full HR operating authority is returned to BPA. With respect to the reporting relationship between the BPA General Counsel and the Department's General Counsel (DOE GC), on November 12, 2013, DOE GC sent a letter to the BPA Acting Administrator memorializing the reporting and communications structure for the BPA General Counsel that they had discussed and agreed upon. BPA's General Counsel retired in March 2014, and an Acting General Counsel has recently been designated. The existing reporting relationship between the BPA General Counsel and DOE GC is expected to remain in place until a permanent BPA General Counsel is put in place, with a reevaluation likely to occur after an appropriate transition period.

OFFICE OF SCIENCE

Question. National scientific user facilities like the Environmental Molecular Sciences Laboratory and Atmospheric Radiation Measurement Facility located at the Pacific Northwest National Laboratory in Washington State play a central role in the U.S. research ecosystem by providing thousands of scientists access to unique instruments, expertise, and facilities. As State and Federal budgets endure ongoing downward pressure in the coming years, the importance of user facilities will continue to grow as they are shared resources available to the entire scientific community.

How does the fiscal year 2015 budget request ensure that scientific user facilities will have the resources they need to serve the scientific community and maintain U.S. global leadership in science and technology innovation?

Answer. The fiscal year 2015 budget request for the Office of Science provides the resources to successfully deliver our highest priority investments in new and upgraded user facilities while continuing to serve today's mission needs. In this way we can sustain U.S. leadership in our areas of highest priority without skewing the balance among research, facility construction, and facility operations.

The request for Advanced Scientific Computing Research sustains U.S. leadership status in applied mathematics and computer sciences research, in high-performance computing (HPC) for science and engineering and in networking R&D. The request includes a substantial investment in "capable" exascale R&D to position the U.S. for sustained leadership in HPC, extending capability significantly beyond today's petascale computers to address the next generation of scientific, engineering, and large-data problems. The goal of the exascale computing effort in Science is to provide the forefront computing resources needed to meet and advance the Department's science missions into the foreseeable future, as well as providing vital tools for scientific and technological development, economic growth, and national security to maintain U.S. leadership, which may over time, erode.

In Basic Energy Sciences (BES), the U.S. has world leading status in materials chemistry, catalysis, and condensed matter and material physics. However, the rest of the world is catching up fast, in a number of areas including x-ray, neutron, and electron beam scattering, and aspects of materials science and chemistry. The budget request includes a research activity in computational materials science to overcome the need to pay for access to foreign software; we not only have no control over the source code, but also these codes are not optimized to run on our massively

parallel supercomputing user facilities. The budget also invests in key upgrades to two x-ray light sources, and provides support for optimal operations at the BES user facilities, to advance U.S. leadership in those areas.

The request for Biological and Environmental Research (BER) includes investments that will sustain U.S. global leadership in synthetic biology for plants and microbes, plant and microbial ecosystems, systems biology relevant to energy and the environment, and cloud and aerosol observations. BER, in coordination with the facilities and the research programs, conducts periodic reviews and strategic planning to ensure user facility support is robust and optimized.

The Fusion Energy Sciences budget request includes strong facility operations and research programs at the DIII–D tokamak user facility and the newly upgraded National Spherical Torus Experiment (NSTX) user facility; these major facilities are keys to continuing U.S. leadership in magnetic confinement fusion. The request also supports operations at the Materials in Extreme Conditions end station at the Linac Coherent Light Source, which positions the U.S. to lead in certain key areas of high energy-density physics. The request also sustains U.S. leadership in measurement and detector science for monitoring what is happening inside a fusion device, and theory, modeling, and high-performance computing simulation to model plasmas under a variety of conditions.

The High Energy Physics request supports the operation of the Fermilab accelerator complex to produce neutrino beams. Two new neutrino experiments, NuMI Off-axis Neutrino Appearance (NOvA) and Micro-Booster Neutrino Experiment (MicroBooNE), will take their first full year of data in fiscal year 2015. The Cosmic Frontier program features a number of leading current efforts and new world-class initiatives, including the Dark Energy Survey which began operations in September 2013 and is the largest astronomical survey dedicated to the study of dark energy and the Large Synoptic Survey Telescope, which is now under construction, will continue U.S. leadership in this area in the coming decade. At the Energy Frontier, U.S. research groups continue to play leading roles at the Large Hadron Collider, both in research and in planning for accelerator and detector upgrades.

In Nuclear Physics, the U.S. is a world leader in hadron physics because of our work at the Continuous Electron Beam Accelerator Facility (CEBAF) and the research on polarized proton collisions at the Relativistic Heavy Ion Collider (RHIC). No other machines in the world have these capabilities. Completion of the 12 GeV upgrade project at CEBAF is necessary for maintaining world leadership in this scientific thrust, and the budget request fully supports that project. The U.S. is a world leader in nuclear structure and astrophysics research through experiments at the Argonne Tandem Linac Accelerator System (ATLAS). In addition, the Facility for Rare Isotope Beams (FRIB), which is entering its peak construction phase under this budget request, will position the U.S. to become the international leader in nuclear structure and astrophysics.

NUCLEAR ENERGY

Question. Small Modular Reactors (SMR) have a role to play in our Nation's all of the above energy strategy by offering size, cost and safety advantages. The Department is working on two cooperative agreements with industry partners to support deployment of this technology, one being in partnership with Energy Northwest of my home State. Is DOE on track to have both cooperative agreements in place by the end of the current fiscal year, fiscal year 2014?

Answer. The Department completed negotiations on and bilaterally signed a cooperative agreement with the Babcock and Wilcox mPower America team in April 2013, and signed a second cooperative agreement with NuScale Power, LLC, in May 2014.

Question. Given the funding included in the fiscal year 2015 budget request for SMR Licensing Technical Support, it is clear the Department is committed to the development and potential deployment of this technology. How can SMR technologies assist in meeting our national energy security and climate change goals? Also, please explain how the SMR program—which focuses on design certification and licensing activities—will help move this technology forward?

Answer. Under the current Administration's "all of the above" energy strategy, nuclear power is considered a key component of domestic energy production in that it provides baseload power with nearly zero greenhouse gas emissions. The Department believes that SMR technologies have economic, deployment, and size advantages that could enable the technology to replace a number of retiring coal plants displacing the carbon emissions of those plants. In addition, many SMRs, due to their size and load-following capabilities may be an effective generating technology for use with other clean energy technologies (including wind and solar) on a distrib-

uted electricity grid and market, where daily load adjustments are necessary. The Department believes that fleet-level deployment of SMRs, displacing a portion of existing fossil generation, can provide safe, clean, and affordable energy to meet the Nation's economic, energy security and environmental goals.

The SMR Licensing Technical Support (LTS) program supports first-of-a-kind costs associated with design certification and licensing activities for SMR designs through cost-shared arrangements with industry partners (industry contributions are a minimum of 50 percent of the cost). A standardized design certification for a reactor technology and a combined operating license approval by the Nuclear Regulatory Commission is a pre-requisite for plant construction. Industry currently estimates that efforts to design, certify, and license a SMR could cost on the order of $700 million—$1 billion. The SMR LTS is intended to help selected first mover U.S. vendors take the first step toward completing their designs and achieving the licenses required to commercialize these products.

NATIONAL NUCLEAR SECURITY ADMINISTRATION

Question. Secretary Moniz, President Obama has reiterated on a number of occasions the importance of combatting the nuclear threat with nonproliferation activities being a vital element. However, the fiscal year 2015 budget request for the National Nuclear Security Administration continues a troubling trend of declining budgets for the Defense Nuclear Nonproliferation account in favor of increases for the Weapons Activities and Naval Reactors accounts.

I am concerned that given our budget constraints we will continue to see declining budgets for Defense Nuclear Nonproliferation activities in favor of Weapons Activities. What is the Department's plan to ensure that important nonproliferation activities are continued?

Answer. The Administration and DOE/NNSA remain committed to our nuclear nonproliferation and nuclear modernization objectives, consistent with the President's vision of reducing nuclear dangers and our reliance on nuclear weapons. As a demonstration of our continued commitment to nuclear security as a priority, the fiscal year 2015 budget request provides funding to continue remaining high-priority nuclear and radiological threat reduction efforts, following completion of the accelerated four-year effort activities. For example, we plan to remove an additional 125 kilograms of HEU and plutonium from high priority countries; protect an additional 105 buildings with high-activity radioactive sources; and initiate some important new activities in the Middle East.

SUBCOMMITTEE RECESS

Senator FEINSTEIN. Thank you very much, and we thank you for being here, and the hearing is adjourned.

Secretary MONIZ. Thank you, Chairman Feinstein.

Mr. PONEMAN. Thank you.

[Whereupon, at 4:05 p.m., Wednesday, April 9, the subcommittee was recessed, to reconvene subject to the call of the Chair.]